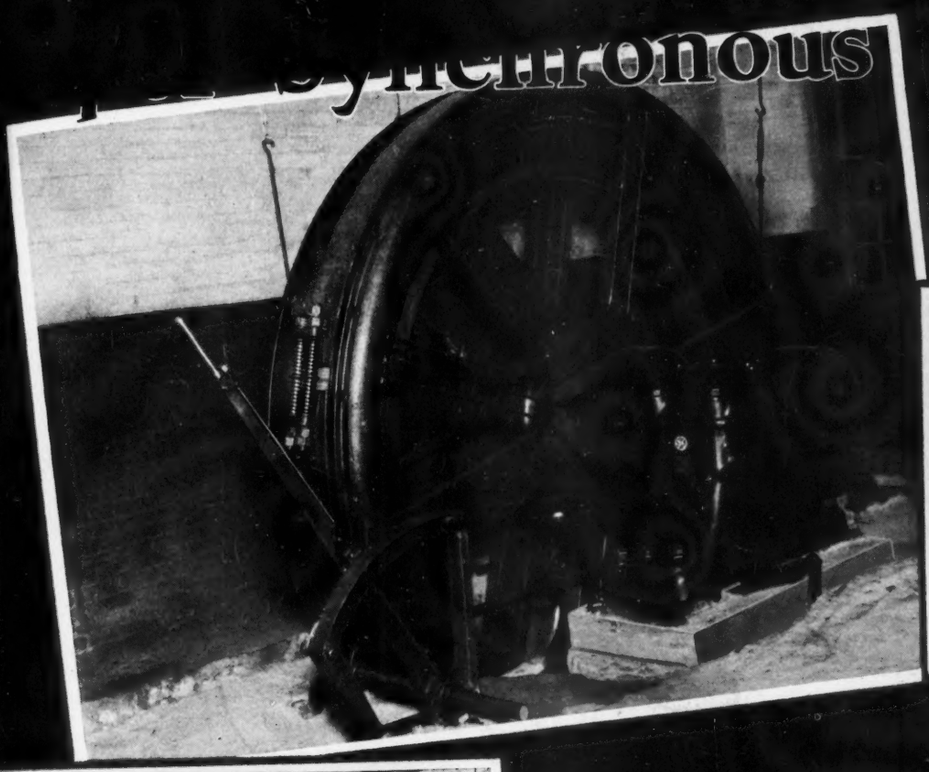
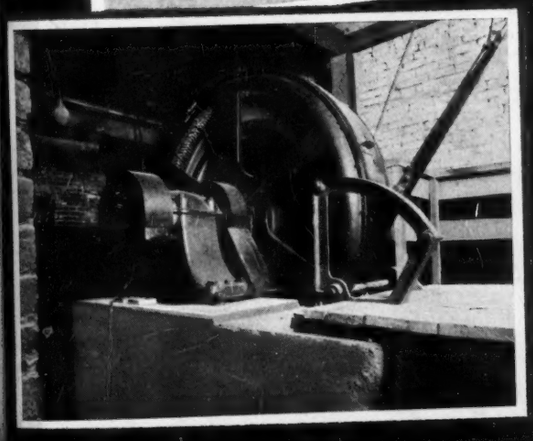
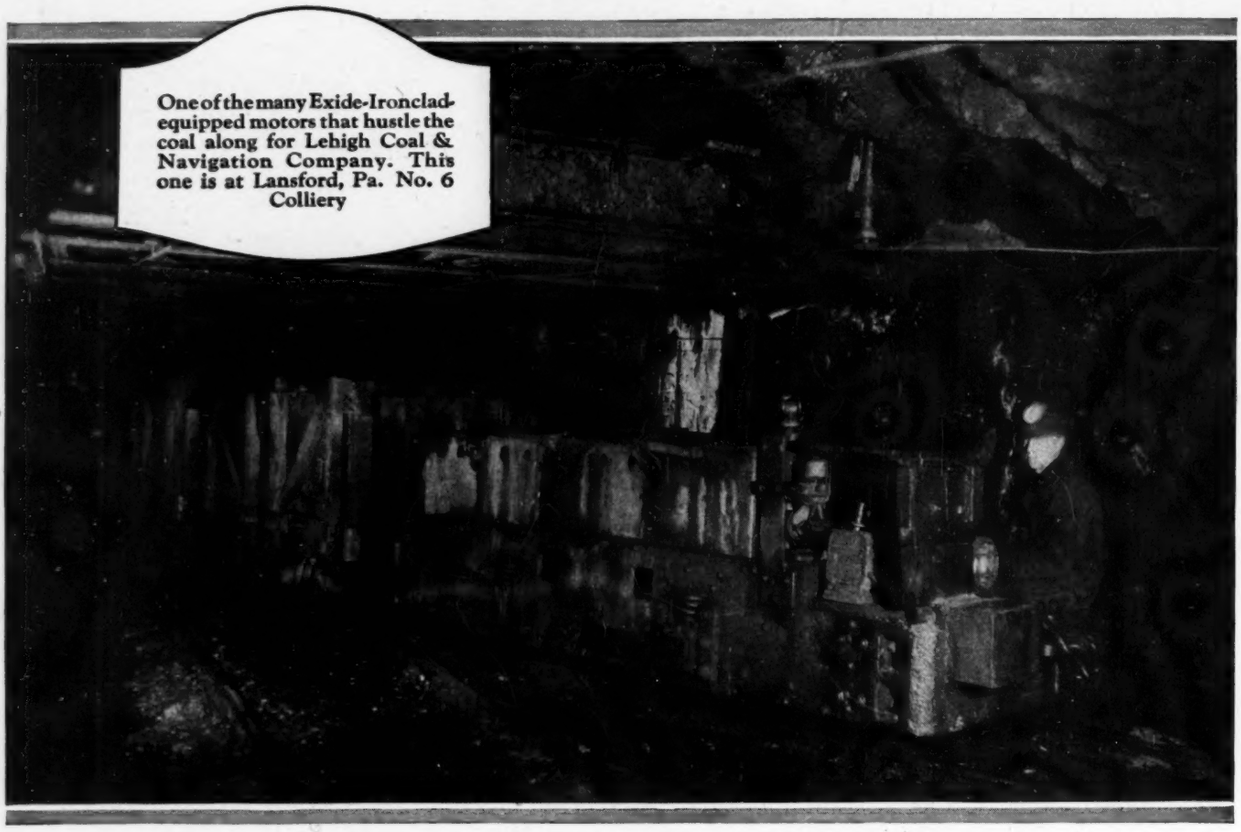
COAL AGE

synchronous





GENERAL ELECTRIC



One of the many Exide-Ironclad-equipped motors that hustle the coal along for Lehigh Coal & Navigation Company. This one is at Lansford, Pa. No. 6 Colliery

No wait for empties here

IN they come with a rumble and roar — a long string of empties on their way to the rooms.

Almost the shift's end, yet the trip moves along rapidly. Never any waiting for cars by the miners. Never any need for the motor to be towed back to the charging barn. For in the battery box of the locomotive is an Exide-Ironclad Battery.

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Up steep grades it pulls heavy trips without pause, for an Exide-Ironclad has power as well as speed. Few are the hills that can stump it, for the battery can deliver its power in a flood if need be. It makes no trouble or fuss about its work. It stays on the job and out of the repair shop, from one year to another.

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

Volume 28 — New York, November 12, 1925 — *Number* 20

E. W. DAVIDSON
Managing Editor.
FRANK H. KNEELAND
E. J. GEALY
J. H. EDWARDS
Associate Editors

COAL AGE

A. F. BROSKY, Pittsburgh
LOUIS C. MCCARTHY
Assistant Editors
PAUL WOOTON
Washington Correspondent

With which is consolidated "The Colliery Engineer" and "Mines and Minerals"
R. DAWSON HALL, *Engineering Editor*

Cutters To the Rescue

SKILLFUL CUTTING can save a mine. There is a story of how it did that very thing going the rounds in Kentucky. Next week's *Coal Age* tells the story. The seam was thin, two partings occurred in the coal. The situation looked so hopeless that nobody had tried to mine that particular bed of coal for years. Then came a company with faith in a machine that can cut top, bottom or middle, according to adjustment. An old mine was reopened. Today that company is running a healthy operation in the "impossible" Amburgy seam.

RIGHT NEXT DOOR, in the Hazard No. 4 coal, some other arc cutters are working to the distinct advantage of the operating company. In that case the trouble was a rotten roof and a troublesome slate band. The roof broke down into the coal in fine pieces at every shot and couldn't be picked out. The band also was hard to separate from coal. Today machines that cut in the top save the roof and the same machines cut out the slate band removing its undesirable presence in the coal. Incidentally, when they cut in slate they rockdust the room.

ALSO, INCIDENTALLY, these cutters, working as they do from a track, reduce the labor necessary to get at the job in hand and cut down the time factor greatly. There is a first-rate lesson in cutting told in next week's issue and told well by Alphonse F. Brosky, assistant editor.

Coal Age READERS may look forward to some good stuff from Alabama before long. J. H. Edwards, associate editor, is cruising the state. He is a good cruiser, as followers of this paper well know.

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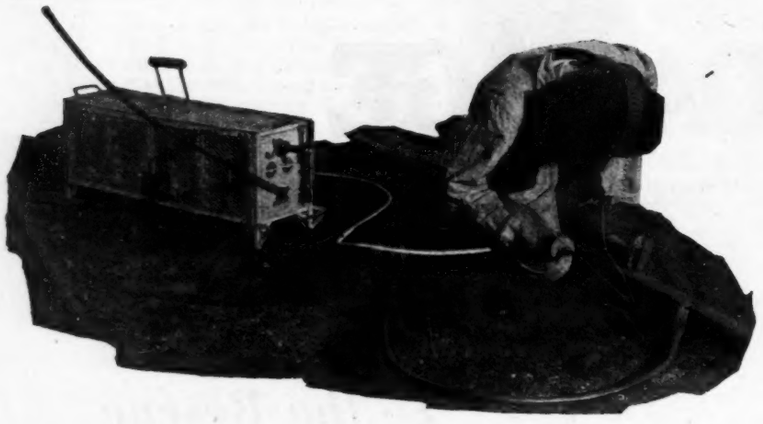

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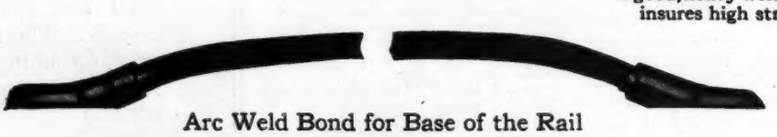

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COAL AGE

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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 28 | NEW YORK, NOVEMBER 12, 1925 | Number 20

By Way of Comparison

ALL OUR JUDGMENTS are comparative and until we have measured each fact with some other like it as a standard we can hardly discover its real value. It is, therefore, illuminating to state that the Census of Manufacturers for 1921 shows that in Pennsylvania the wage earners in the anthracite industry received in the aggregate 28 per cent as much as the employees in manufacturing industries and yet there were only about 18 per cent as many anthracite employees as employees in manufacturing industries.

The average annual wage in all Pennsylvania manufacturing industries was $1,165 and at the anthracite mines, $1,780—a figure obtained by dividing the average number of men employed at the mines in 1921, as reported by the U. S. Geological Survey, into the total anthracite mines' payroll for the year as reported by the state Department of Internal Affairs. Since then wages in all manufacturing industries have declined, but the wages of anthracite mine workers have increased 10 per cent, so that with equally steady work the wage of the mine worker should be $1,958 per year. Overlooking the decrease in the wages of manufacturing employees, the present wage of the mine workers in the anthracite region can be calculated as exceeding that of manufacturing employees by 68 per cent. Compare these wages with those paid in 1923 in certain skilled industries of Pennsylvania:

Newspapers and periodicals	$1,722
Blast furnaces	1,694
Steel works and rolling mills	1,623
Railroad repair shops	1,602
Electrical apparatus and supplies	1,337

To put the figures in less statistical form, the anthracite miner has been asking the average industrial worker to work five days for him in return for three days of his labor. The mine worker will not trade on an equal basis day for day with even such skilled men as newspapers employ, but wants 14 per cent more time. To supply and intensify this anomaly a strike is now instituted by the overpaid mine worker to get a 30-per cent increase.

Ebb and Flow in Britain

IN THE UNITED STATES many mines have been closing and others opening during the past year. Unionism and non-unionism have something to do with this, but some of the mines which have closed have been mines of the high-cost type—old and ill developed—and others that have been opened have seemed good projects as they were new and could be well equipped.

In Great Britain a like tendency is quite manifest. A paper reports the fact that in the Rhymmny Valley of South Wales 10,000 men are idle, that Mardy Colliery is to be closed, that the Bargoed Colliery has been shut down for a month, that fourteen-day notices have been served on 4,000 miners at the Beynon pit, Blaina, the Prince of Wales, Abercarn, Cwmcarn, and at Nos. 2 and 4 mines, of D. Davis & Sons. The same paper records also the sinking of three new shafts in the Yorkshire fields, one at Thorne, another at Ollerton, and the third the Markham Colliery of the Stavely company. Depth does not hinder development. The coal in the Thorne mine will be nearly 2,800 ft. deep. What is necessary is a new operation not hampered by prior mistakes and ancient practices.

The closing of old mines and the opening of new would be even more rapid if the British were to open their hearts to the radical changes in equipment that decrease costs and make high wages possible. Perhaps if they did that they might forestall many radical political changes, unless, indeed, the revolutionary development had the contrary effect of creating a ferment of mind, where mines, grown out of date, had to be closed.

The World's Darkest Job

NO INDUSTRY OPERATES as much in the dark as coal mining. Less light is provided and what illumination there is quite largely is lost in the light-absorbing walls of the mine. Thus coal mining is pursued in even deeper darkness than metal mining. It is a wonder that efforts have not been made to illuminate mines adequately by stationary lights along the headings and at the face. Speedy, energetic work can only be obtained where men can see what they are doing, and the right psychological attitude toward work is attained only when men have light to cheer them.

Fewer accidents will occur when more light is provided. Men stumble around in semi-darkness unable to see their work clearly. Where the reflector of the lamp is directed, an area is illumined, but all around is Stygian darkness. A few stationary lights properly placed would make conditions better but even then the mine would still be as badly illuminated as the average factory was one hundred years ago or more. There is safety in sight, there is speed also, certainty and comfort. Better light is coming. Men are not going to poke around in the dark forever with science so prodigal with new illuminating devices. The portable lamp is needed, and doubtless always will be needed, to throw the light in the immediate spot where the actual work is being done, but there is no reason why all the rest of the workings should be enshrouded in impenetrable darkness.

Timbers as Rock-Dust Shelves

WHERE TIMBERS have been cleaned of coal dust and well covered on their upper surfaces with rock dust they furnish an excellent preventive against coal-dust explosions. A long row of timbers should be a continuous rock-dust barrier, ready at all times to put a curtain in the path of the advancing storm. A few boards might be run from timber to timber and loaded with rock dust as further precaution if any were needed. These could be of such length and so located that they would be easily displaced by a blast.

Those Hot Bearings

WHAT INSURANCE MEN dread in coal breakers is that some of the bearings may heat and cause a fire. Every pedestal or block is a possible source of a conflagration. Prudence would dictate that as few bearings as possible be used, that bearings be provided that are not likely to heat and that speed reducers that run in oil and are inclosed be used instead of open gear trains. Where pump machinery is installed underground the same is true. A fire starting below ground at an unattended pump may do damage as great as a fire in a big breaker.

Building for the Future

THE HOPE of Central Europe burns dimly because of the spirit of hatred existing between the many peoples. Oppression and wrong have done their fatal work. There is no willingness in any one to believe good of another, and the man of kindly, charitable attributes is suspected just as others are. It has taken a long time to create this ferment of mutual distrust, but Central Europe will be still longer overcoming it.

This object lesson needs to be considered in our country by employer and employee alike. Mutual faith cements peoples and makes for success. The United States has prospered on such an understanding. This mutual respect has been the basis of large production. Co-operation has been the keystone of our progress. A corporation or a union that overlooks the importance of friendliness in the conduct of its business will some day face a grievous condition. The blame may by each be transferred to the other, but what satisfaction is it to blame the other party if we can not allocate the misfortune as well as the blame.

Where parties are mutually exasperating, contact only increases the ill feeling. Where, however, the relationship is pleasant, continued contact makes the association of the parties the more binding. The company or the union that is always bound to get its rights to the last nickel and even strives at times to get much more will find in the end that what it strove for is a lesser conquest than that which a less contentious spirit would have achieved without effort.

New Uses for Slack

SO LONG AS in the obtaining of screen coal enough slack is produced to flood the market, the smaller sizes will sell at a bargain. In the summer time the lack of market for domestic bituminous coal does at times even cause a shortage of small sizes, for some mines will not run at all if they cannot sell domestic coal or cannot obtain for run of mine prices that are all too high for those to pay who need only slack.

The cure for the situation is to increase the sale for fine sizes to such proportions that there will be a perennial shortage such as can be cured only by buying run of mine, crushing the coal at the steam plant and paying enough for such sizes to justify the production of coal for the steam market alone. That condition might have been here quite generally already had not notable economies in the use of steam coal been made, but any advance such as using coal for cooling purposes or for extensive sprinkling and irrigation of farms would make the demand for coal so great that the price paid for slack would have to be raised.

The supply will then be forthcoming only when such a price is paid for it as will make it profitable to run mines with the sole purpose of producing steam coal. Mines in some sections already do this, but it should be the case everywhere. It should be possible to run any mine as profitably producing run of mine as producing a screened product. Of course, the man who prepares his coal carefully will get a better price for it or he will produce run of mine only, but the real profits, after interest on the greater investment and after consideration of the greater cost of handling, billing and balancing a screened product are allowed, should be almost equal.

The research committee of the National Coal Association, therefore, is well justified in looking for additional uses for steam coal even though for the summer months only, when fine sizes are relatively scarce. The power companies probably will buy in the winter to stock for summer use unless the demand is so great that mines may have to be run on run of mine to supply the product in all seasons.

On the whole uncleaned slack if sold on its merits for stoker use and not on the basis of supply and demand should sell at a better price than uncleaned run of mine because it does not have to be crushed and is, probably, less likely to fire in storage. So much run of mine today, however, is screened, the lumps hand-picked and the whole reassembled that run of mine is cleaner than screenings and rightly commands a better price.

Food from Coal

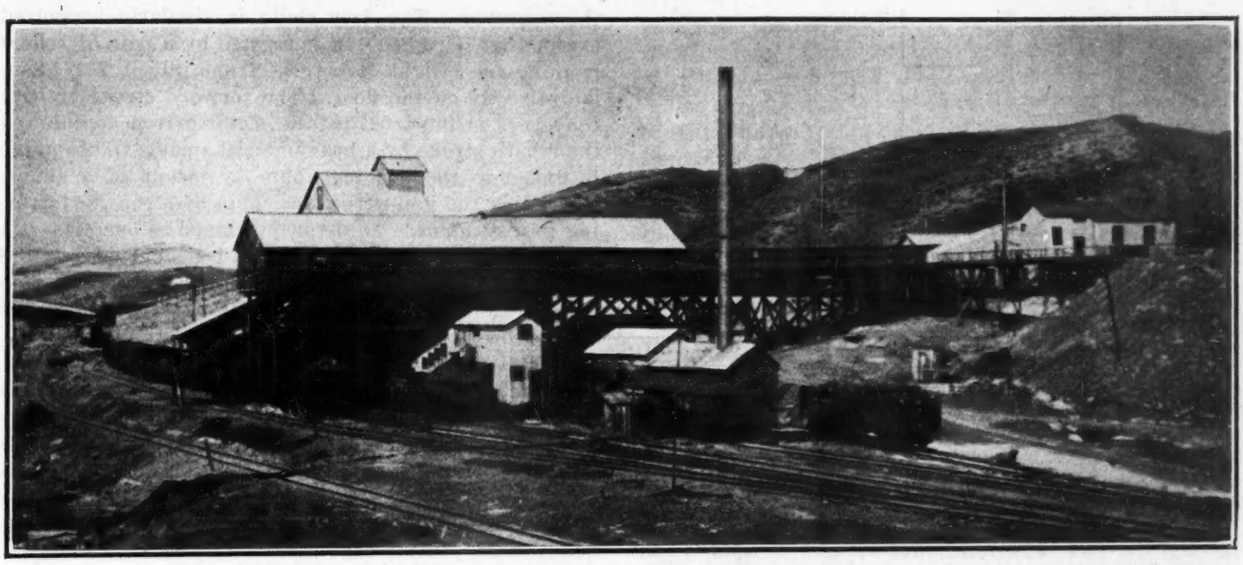
MODERN CIVILIZATION is demanding more and more nitrogen—that element which makes up nearly 80 per cent of our atmosphere but which cannot be utilized until it has been forced into chemical combination with some other element such as hydrogen. Ammonia, a combination of this kind, yields readily to chemical processes for conversion into fertilizer and other products so necessary in the arts of peace and war.

We have heard so much in the last few years of the association of water power and cheap fertilizer that it is a relief to learn of the plant which is being completed near Charleston, W. Va., for the production of 25 tons per day of ammonia from bituminous coal. That this plant is one of the Dupont industries makes it the more impressive as a forerunner of a new and extensive use for coal. Ammonia from coal; fertilizer from ammonia; and food from almost any soil when fertilized! What have the coming generations to worry about?

THIS IS HOW the miners' union lives up to its claim that it aids the development of new mining machinery: An Indiana operator started to test out a cutting-shooting-loading machine. Its operation required the firing of half-pound shots of permissible powder with men in the mine. The state law permits shots at least twice that size while men are underground. A union order to its members, however, required them to get out of the mine every time a charge was fired. Of course the machine got out instead. Who knows but that it might revolutionize mining—if it got a chance?

WITH COAL AND FORDS both shipped from the same Duluth dock, Northwest consumers may kick about tramp iron in their fuel only if there are no spotlights, self-starters and demountable rims on it.

IF LEWIS CALLS a soft-coal strike with no more cause than he now has, the public ought to call it a foul strike.



Shaking Conveyor Eases Labor in Pitching Coal

At Sublet, Wyo., a 3-Deg. Chute Along 100-Ft. Face Discharges to Another Inclined at 20 Deg. Which Delivers Into Cars with Little Breakage en Route

By R. Dawson Hall
Engineering Editor of *Coal Age*
New York City

WHEN A BED OF COAL pitches at 20 deg. or thereabout it offers a difficult mining problem. It is so steep that it is hard to work by rooms driven on the strike. The steepness also makes it difficult and dangerous to work with cars on the pitch, because any contrivance, such as a McGinty, which causes the loaded cars to pull up the empties, is likely to dislodge the posts that hold it and cause frequent and dangerous runaways. Ropes break and brakes fail to hold. Consequently, any such method is rarely favored even with slopes far less steep.

On a sheet-iron chute inclined at 20 deg., some kinds of coal such as that mined at Sublet, Wyo., will not run without bucking, though that at Elkol in the same state will run freely on a somewhat lighter grade. Apparently the shape of the lumps is important. A coal that breaks into a slab-like form will slide less freely than one that is more or less cubical and still less freely than one that is rounded. With a slab-like coal on a 20-deg. grade a number of men have to aid the movement of the coal and it may well happen that more have to be employed to buck the coal than to mine it, for it is always uncertain just where the material will choke and need dislodging.

For this reason at Mine No. 5, Sublet, Wyo., a plant of the Kemmerer Coal Co., about nine miles north of Kemmerer, shaking chutes have been provided. It is remarkable how readily coal will move down a slight incline, on the level, or even on a slope inclined a few degrees uphill when resting on a chute having a differential motion. When the chute goes forward slowly, the coal moves with it but when the chute is jerked suddenly backward the coal fails to follow and retains the progress it has made on the forward stroke, thus awaiting the time when another forward movement of the chute will give it a further travel in the same direction.

In Sublet, the face chute is placed on a 3-deg. inclination, but it would work acceptably uphill. The coal does not roll or bounce forward even on the full pitch. It merely slumps or shuffles along at a speed dependent on the grade and the violence of the reciprocation. There is, in consequence, little dust, little degradation and remarkably little sound, far less of the last and probably less of the second than with an apron conveyor. I am not sure but what the same claim can be made for the first of these advantages, for the motion is so easy that dust should not be raised. The coal has a relatively silent passage, giving the shovelers an opportunity to hear the cracking of the face, roof or props should pressure manifest itself and give warning.

The shaking-chute working in Sublet lies between the Eleventh and Twelfth South Entries. Operations at that point can hardly be termed longwall mining for the face is only 100 ft. in length. The coal over that width of operation is entirely removed on the advance. The work is carried straight up the pitch but the face is not exactly at right angles to the direction of progress, but is inclined so as to lie at an angle which gives the face line and conveyor serving it an inclination equal to 3 deg. from left to right.

The face conveyor is placed about 5 ft. from the coal face and about five rows of props at 5 ft. centers (each prop in any row being 5 ft. from its fellow) are placed or retained back of the conveyor. However, as the face advances, other props are set, so that before the con-

The headpiece is a general view of the No. 5 tipple at Sublet. It is in the mine under the hill at the right that shaking conveyors are being tried and among other things are doing much to increase the size of the product marketed even though the coal is shot off the solid.

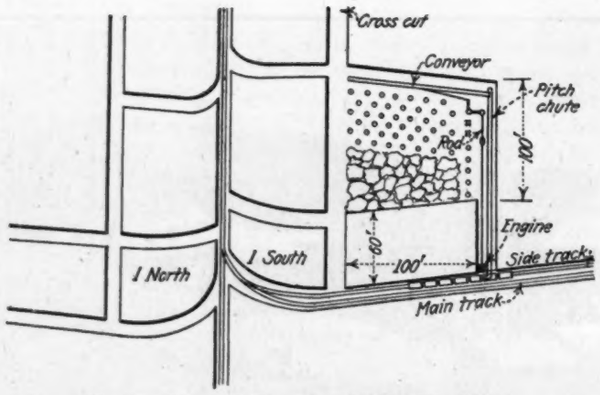


Fig. 1—Plan of Conveyor in the Workings

This shows the layout of the conveyors and mine passages. The face and heading chutes meet at an angle that is a little less than 90 deg. The slope of the face conveyor is small but the heading conveyor is laid on the full pitch of the coal bed.

veyor is moved forward, two rows of props lie between it and the face, without, however, interfering with the shoveling of coal.

At its right, or lower end the face conveyor discharges to a second conveyor that transports the coal to the entry. Delivery from one chute to the other is at almost a right angle, yet is accomplished without spillage. The coal travels rapidly down the second or pitch conveyor and at its end enters a curved section that makes delivery to the mine car below in a direction parallel to the track.

Each section of the heading chute is suspended by a pair of chains or heavy wires from a light crossbar or pipe extending between posts set up on either side of the conveyor. The face chute is similarly supported except that its upper end is carried by a pair of rollers running on a light structural frame about 2 ft. long laid directly on the floor. The forward stroke of both conveyors is imparted by the motor-driven engine and the return stroke by a heavy helical spring. The engine is linked to the heading chute by means of a simple connecting rod and to the face chute by a rope terminating in a turnbuckle adjustment, pinned to one arm of a bell crank, the other arm of which is connected by a rod to the conveyor chute. Amplitude of the face conveyor's oscillation is adjusted by changing the position of the connections to the two arms of the bell crank.

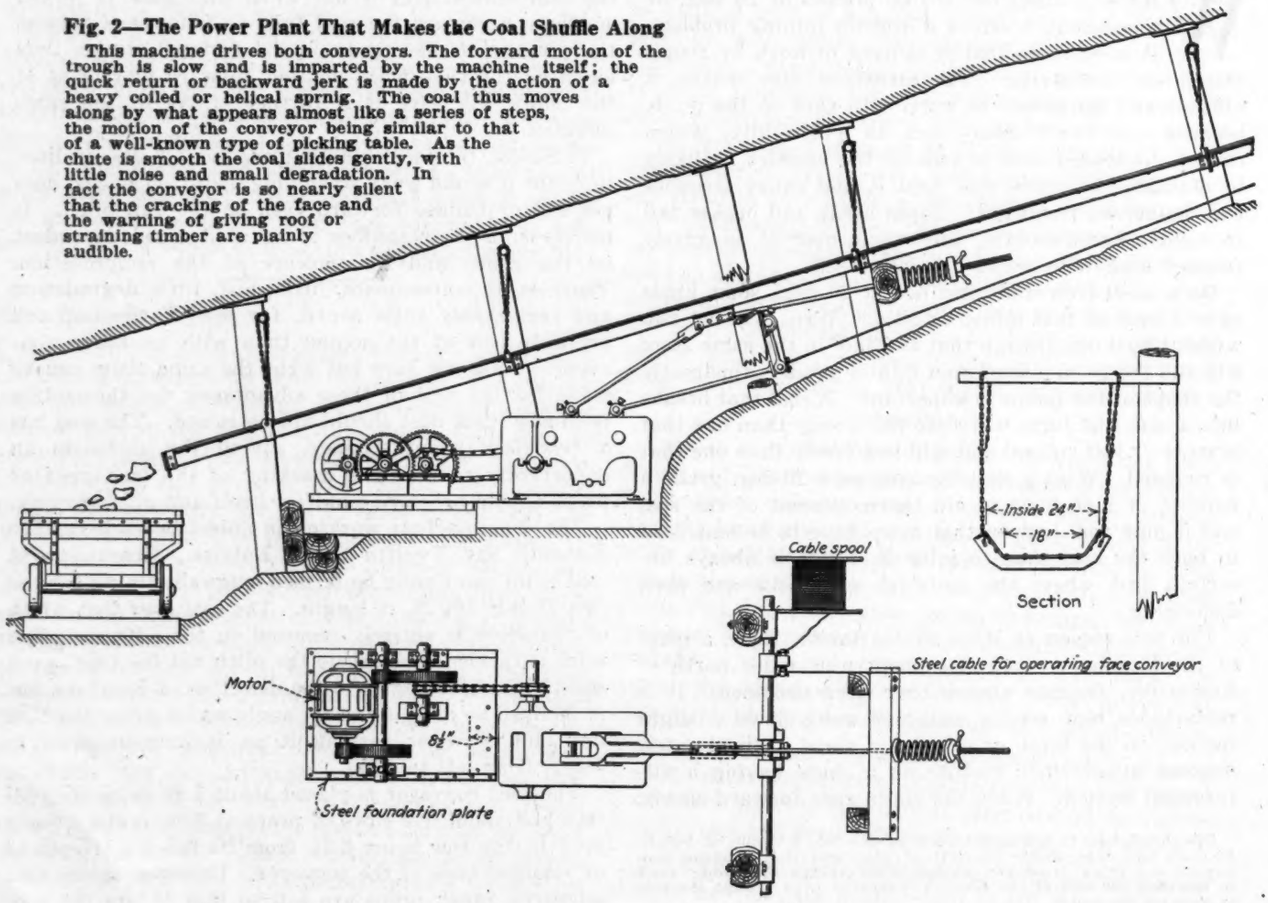
By the introduction of these shaking-chute methods, the work of mining is greatly concentrated making less development necessary, decreasing the area to be ventilated, superintended by foremen, inspected by firebosses, sprinkled with water or treated with dust. The pressure of the roof helps to break down the coal making it unnecessary to use more than about a quarter the quantity of powder that otherwise would be required. Undercutting is not necessary, nor is it practiced.

It is likely that in the future a greater length of working face will be provided, still further decreasing the costs for standing development, for ventilation, superintendence, inspection, sprinkling, rock dusting and shooting. The use of longwall makes possible a more nearly complete recovery, for without such a system and using room methods none of the pillars could be withdrawn.

The coal which is clean and about 5 ft. 6 in. thick has well defined and frequent cleats that make it easily mined whenever the advance is in a direction that takes

Fig. 2—The Power Plant That Makes the Coal Shuffle Along

This machine drives both conveyors. The forward motion of the trough is slow and is imparted by the machine itself; the quick return or backward jerk is made by the action of a heavy coiled or helical sprnig. The coal thus moves along by what appears almost like a series of steps, the motion of the conveyor being similar to that of a well-known type of picking table. As the chute is smooth the coal slides gently, with little noise and small degradation. In fact the conveyor is so nearly silent that the cracking of the face and the warning of giving roof or straining timber are plainly audible.



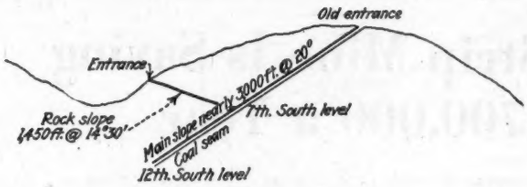


Fig. 3—Sketch of Surface Contour

When this mine was first opened the main slope followed the pitch of the coal bed. More recently a rock slope has been driven from tipple height in the valley to intercept the coal bed at about the Seventh Level.

advantage of those qualities. The roof for about 200 ft. above the coal is weak and falls readily when not supported, breaking into small fragments. Above that a 54-ft. seam of sandstone is found which probably interposes a greater resistance. Of all the overlying strata this measure alone shows marked strength. The cover above the coal is from 1,000 to 1,100 ft. in depth at the Twelfth South Level.

MAKE NEW ROCK SLOPE

Those who are disposed to take a pen and a table of sines to ascertain the depth should be informed that the former entrance to the mine and the outcrop of the seam are near the top of the hill on one side of the canyon. A new rock slope has been made from tipple height in the valley. This pitches at an angle of 14½ deg. and strikes the former slope on the hanging wall at about the Seventh Level as shown in the diagram, Fig. 3.

It has been found that the conveyor can be advanced the 10 ft. necessary for each move in about 30 min., so little time is lost in making the transfer. At the point where the pitch and face chutes meet, two unfilled chocks of square timber are used alongside the pitch conveyor resting on the shale bottom. These chocks can be recovered and they are carried forward as the face

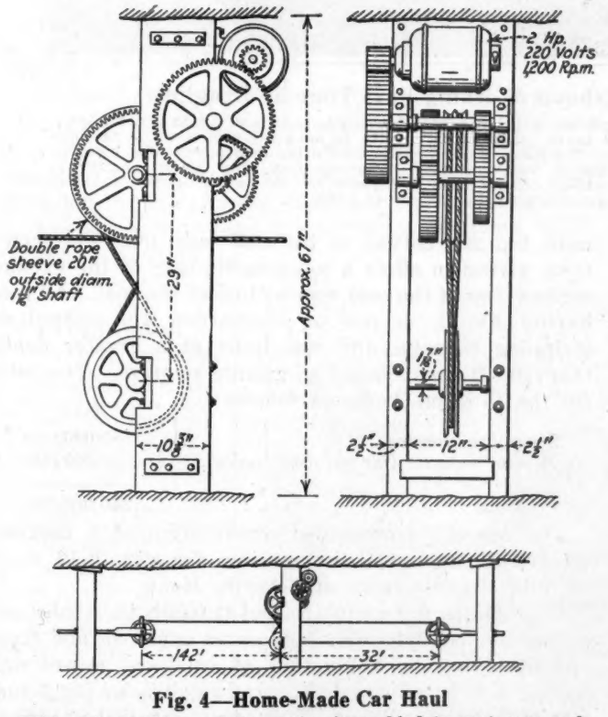


Fig. 4—Home-Made Car Haul

With this machine a 2 hp. motor is enabled to spot cars under the chute for loading where control would be difficult if some mechanical means were not employed.

advances. So far all timbers have been pulled and reset without loss. The floor is so soft that it is necessary to put short blocks or sills under each prop.

The cars are spotted by a home-made car haul, details of which are given in one of the accompanying illustrations. This car haul as well as the chutes were improvised most skilfully at the shops of the company by Gomer Reese, general superintendent of the Kemmerer Coal Co., who used for that purpose material available around the mines.

Ten men mine and shovel the coal into the face conveyor and one handles the cars beneath the chutes. The entire force thus consists of eleven men. The output in eight hours is about 125 tons. This is not a noticeable saving in the number of men employed but

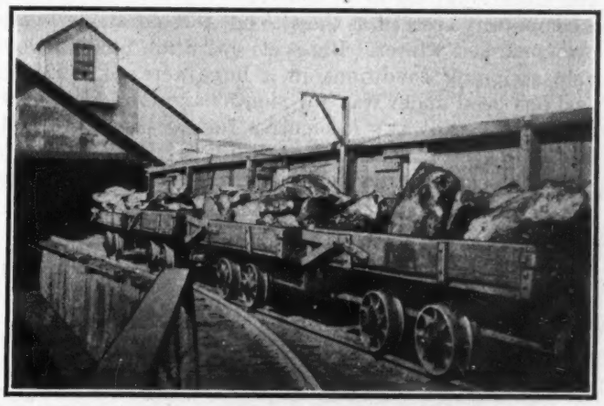


Fig. 5—Conveyor Coal On the Tipple

This illustration shows coal loaded by shaking conveyor, as it enters the tipple. The excellent size of the lumps is immediately noticeable. One of the chief advantages of long-face mining by shaking chute is the increased yield of lump coal and the small quantity of fine material and dust that is produced.

the advantages are not so much in tonnage as in better coal and in a reduction of costs other than those of actual mining. However, the greater percentage of extraction is an important advantage.

The cars are not large, their wheel gage being only 42 in. and their bottoms not being set down over the wheels. They hold about 1½ tons each as loaded by the chute and are not topped by hand. They weigh about 2,200 lb. empty. As the roadways have to be timbered heavily, it would not be advisable to make the cars much wider or higher. It would be necessary to cut heavily into the bottom shale to permit the entrance of a car of any greater height and as the bottom is quite soft and as the cover is heavy, any enlargement of the cross section of the roadway would be undesirable.

The small size of the car does not seem to be an important cause of delay at the chute as the cars can be rapidly and easily spotted for filling. However, if they were larger the same number of trips spotted under the chute would result in a larger production.

Because of the weakness of the floor it has not been feasible to use a scraper. It is feared that even if such a loader were run over a steel plate it would dislodge large quantities of bottom and spoil the product.

In order to make the mine safe against explosions the Eleventh South Level has been copiously rock dusted with pulverized limestone from the Devils Slide in Utah. Barrier troughs also have been installed near the main slope using the same dust. This appears to be dry and in excellent condition to make a curtain of inert material as soon as dislodged.

First All-Electric Coal Strip Mine Is Saving Northern Pacific $700,000 a Year

By H. E. Stevens
Chief Engineer, Northern Pacific Ry., St. Paul, Minn.

THE FIRST COMPLETELY ELECTRIFIED coal strip pit in the country at Colstrip, Mont., is now busily justifying the Northern Pacific Ry.'s decision to mine coal in that isolated prairie locality. Forty miles of track had to be built to this stripping from the railway's main line at Forsyth, a power line 100 miles long had to be constructed from Billings and a community created at the site but these obstacles were overcome last winter. Big-scale operation under favorable stripping conditions in a huge acreage of 28-ft. coal has been under way for months and is reducing the cost of the railway's locomotive fuel at the rate of at least $700,000 a year.

In prospecting the coal resources tributary to its lines of railway the Northern Pacific, in 1913, made a general geological examination of the large semi-bituminous coal vein in south central Montana, known as "The Rosebud Field." From outcrops and other indications it was determined that this vein underlies an area of approximately 700 sq.mi. in Montana, and an unknown larger area in northern Wyoming, and that the full thickness of the vein was 28 ft. This thickness is maintained over the entire area, except where the bed is eroded or burned out. Fig. 1 shows the location and approximate outline of the field in Montana.

It was also found that the Rosebud vein was closely underlain over practically the entire area by the McKay vein; the parting between the two beds of coal varying from a few feet to 20 ft., indicating that the two measures were really a part of the same deposit.

No reliable estimates are available of the total volume of coal in the two veins, but from this outcrop survey it was calculated that there were at least six billion tons in the Rosebud vein in Montana alone.

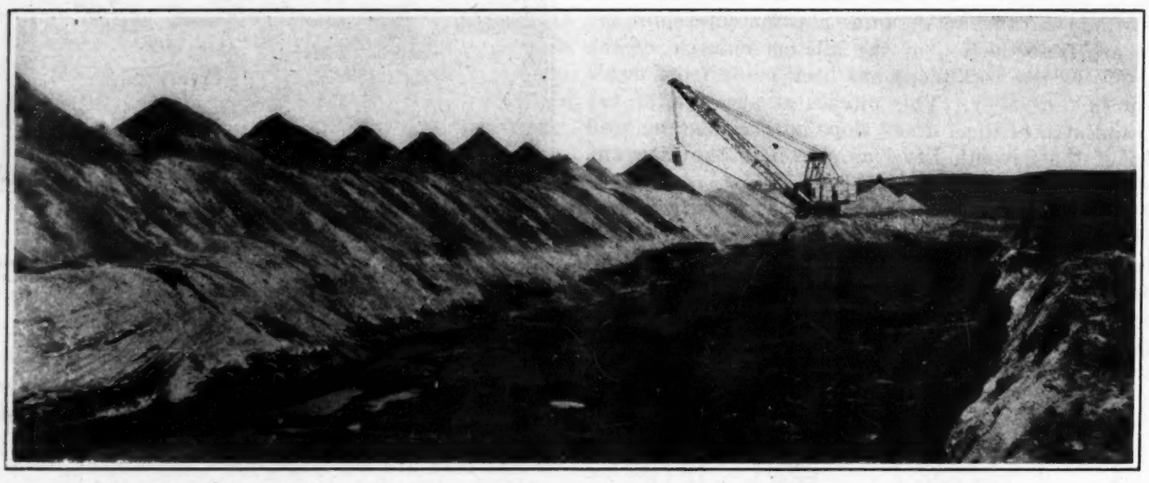
Although the Northern Pacific, through its subsidiary, the Northwestern Improvement Co., owned and operated some good mines at Red Lodge, Mont., the possibility of developing a more economical locomotive fuel supply from the Rosebud field was such that in 1917 the chief engineer of the railway was directed to make a thorough exploration and report, covering methods and costs of reaching and opening the Rosebud field, and the comparative value of that coal as a locomotive fuel. This work was completed and report made in February, 1919; the exploration covering 15 sq.mi. in the northerly edge of the field near the head waters of Armell Creek, outlined in black in Fig. 1 on the opposite page.

A complete topographic survey was made of a tract of 15 sq.mi., and sufficient borings put down to determine top and bottom of the coal seam over the entire area, giving in effect a topographic map of the ground surface, top of the coal, and bottom of the coal. All coal having 100 ft. or less of overburden was classed as stripping tonnage, and coal lying at a greater depth than 100 ft. was classed as mining tonnage. The total for the 15 sq.mi. being as follows:

	Tons
Stripping volume	150,000,000
Mining volume (50 per cent recovery)	90,000,000
Total	240,000,000

The report recommended construction of a railroad up Armell Creek, and the opening of a strip field about 30 miles directly south of Forsyth, Mont.

Five shafts were sunk to and through the coal seam at various locations within the area explored, and from one of these about 400 tons of coal was mined and hauled across country to the railway tracks for actual test in locomotive firing. These tests demonstrated that this coal could be successfully used as locomotive fuel, although it would require some changes in the existing methods of drafting and firing.



Through Cut at Colstrip Made by Big Shovel Working Part Time as Dragline

This was the beginning of the country's first all-electric coal strip pit. The cut was about 7,800 ft. long. Parallel cuts to this are now uncovering swiftly the 28-ft. bed of coal which is shot and loaded out into railroad cars run into the pit on a track laid directly on the coal berm. The pit is expected to save the Northern Pacific Ry. at least $700,000 a year on its locomotive fuel consumed on Montana divisions. This mine, excavated in the boundless prairie of south central Montana, is near the region made famous by the Custer massacre. The historic, Indian-fighting, Big Horn country is directly at the west of the Colstrip coal beds.

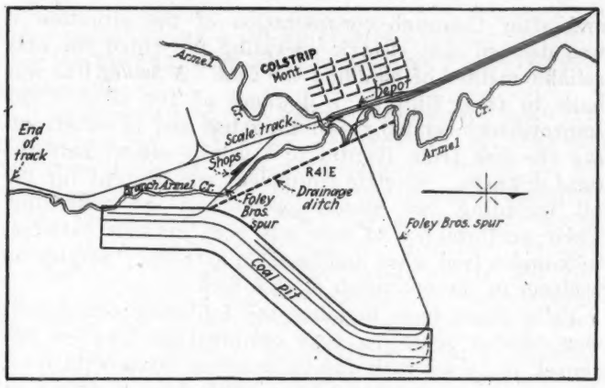


Fig. 1—Layout at Colstrip

From this drawing the position of the 8,000-ft. strip pit can be seen with relation to the newly-built village and railroad. The drawing indicates that one through cut has been made and loaded out and that the shovels are working on parallel cuts.

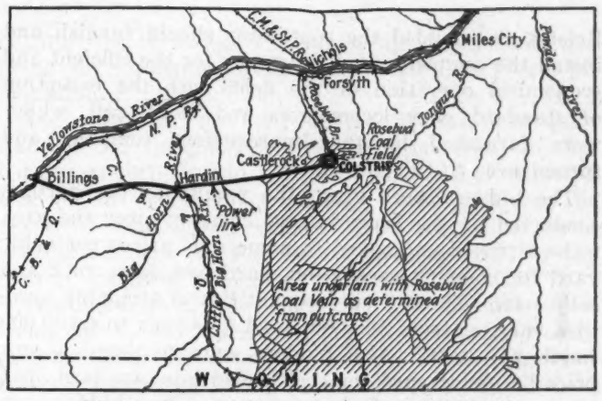


Fig. 2—General Map of Rosebud Coal Field

Billions of tons of coal underlie the tremendous area of south central Montana and northern Wyoming, the deposit most available to the Northern Pacific being the 15 sq.mi. at Colstrip, opened by the new Rosebud branch.

Test samples were taken from shafts and drill holes, the average analysis of 48 samples being as follows:

	Per Cent	
Loss from air drying	12.30	
Retained moisture	11.08	
Volatile combustible	51.20	
Fixed carbon	29.94	
Ash	7.77	
Sulphur	0.67	
B.t.u.	....	10,825

In the locomotive test runs comparison with Red Lodge coal was as follows:

	Red Lodge	Rosebud
Pounds water evaporated per lb. coal	5.81	4.33
Pounds coal per 1,000-ton miles	104	146
Pounds coal per drawbar hp.-hr.	4.79	6.77
Tonnage hauled	1,794	1,783

These figures were the average of six round trips over an undulating one-per cent grade with the heaviest class of freight power. From these figures it was determined to make the economic comparison on the basis of one ton of Red Lodge coal being equal to 1.4 tons of Rosebud.

On this basis, and on the further assumption that a railroad to the coal field would develop no additional business of consequence, it was estimated the railway company would make an annual saving of at least $700,000 by substituting Rosebud for Red Lodge coal as locomotive fuel over the territory, Mandan, N. D., to Missoula, Mont.

No action was taken on the report until the fall of 1922, when the board of directors authorized the construction of the branch line and the opening of the field.

The construction of the line was awarded to Winston Bros., of Minneapolis, and work begun in the spring of 1923. The track reached the coal field in December, 1923. Ballasting was deferred until the season of 1924, and the line was turned over to operation on Sept. 1, 1924.

Meanwhile a small test pit lying in comparatively shallow overburden was stripped with grading machines and about 45,000 tons of coal delivered to the mechanical department for further locomotive tests, for the purpose of determining proper drafting, firing, etc.

The Northwestern Improvement Co. was not equipped or organized to handle a large excavation job, and, therefore, it was decided to open the field by contract. It was thought, however, that it might later be desirable to operate the field by company force, and a 5-yr. limit was fixed for the first contract operation. In order to permit taking the field over without interruption in the operation it was necessary to make some provision in the contract whereby the Improvement company would come into possession of the equipment at the end of the contract. At the same time it was desired to leave the contractor free to select and install the equipment which, in his judgment, would most economically handle the desired output of coal. The contract, therefore, carried somewhat unusual provisions in the way of division between unit costs and equipment costs.

Loading Out

The 175-ton shovel picks up coal from the 28-ft. bed already loosened with explosives and discharges it directly into railroad equipment run into the pit on the berm. Ten-car trains are each loaded in a little over an hour. The trains are handled in and out of the pit by 60-ton storage battery locomotives, the largest in coal service anywhere. Chief Engineer Stevens of the Northern Pacific, says these locomotives solved a troublesome problem and have given "excellent service."

Briefly, it provided the contractor should furnish and install the complete plant necessary for the efficient and economical operation of the field, with the exception of standard gage locomotives and 56-lb. rail, which were furnished by the Improvement company and turned over to the contractor.

The bidders were given the results of the borings conducted by the Improvement company over the area to be stripped and asked to name unit prices per cubic yard for common excavation, hard pan, loose rock and solid rock. The estimated quantities of stripping specified varying from 500,000 cu.yd. per year to 2,100,000 cu.yd. per year. Also bidders were to name a unit price per cubic yard for coal loaded into standard open top cars of the railway company. The bidder was required to specify rates per hour for each class of employee which he proposed to use on the work. The improvement company agreed to assume the risk of variations in rates of pay throughout the contract period.

CONTRACTOR TO FURNISH PROPER EQUIPMENT

The bidder was also required to name a flat lump sum for the equipment complete, specifying the principal items of equipment contemplated by his plan of operation, but the responsibility for furnishing the proper type of required equipment was to rest solely with the contractor. Payments for equipment were to be made by the Improvement company in ten semi-annual amounts. The equipment included camps and all appurtenances necessary to put the field on a practical and economical operating basis.

In comparing bids, the unit prices bid per cubic yard for the different classes of excavation of overburden were extended into the classified quantities as determined from the borings, and the unit prices per cubic yard for coal loading extended into the estimated quantities of coal. To these sums was added the flat sum bid for equipment, and the wage adjustment necessary to put all bids on the same basic wage scale. The total so obtained divided by 4,100,000 cu.yd. gave the amount per cubic yard the company would pay for coal. This method completely amortizes the equipment in the 5-yr. period.

It is interesting to note that on this basis the difference in estimated total payment for stripping the overburden on the unit prices bid by Foley Bros., as compared with the bid submitted by Winston Bros., was but $6,150 on an estimated volume of 6,300,000 yd. of stripping.

Foley Bros., bid for loading the coal, however, was substantially below the figure named by Winston Bros., and the former firm was awarded the work.

QUESTION OF WATER SUPPLY

The preliminary exploration of the field had developed the fact that the question of water supply would become an important one; in fact, there was no dependable surface water supply available, and it was questionable what supply, if any, could be developed from the pit. Because the test shafts had filled with water as soon as they were put down it was thought the drainage ditch from the pit proper would provide an adequate volume of water, although it was known to be of extremeley poor quality for boiler purposes.

The opening of the drainage ditch and of the preliminary test pits developed the fact that no real vein of water was available either above or below the coal seam, and after thorough consideration of the situation it was decided that electric operation presented the only reliable method of handling the field. A power line was built in from Billings, a distance of 100 miles. The Improvement company assuming the cost of constructing the line from Hardin to Colstrip—about half the total distance. Electric equipment was bought for the pit including two 60-ton locomotives for switching. Their performance to date has been entirely satisfactory and solved what had been an extremely perplexing problem in the operation of this field.

Foley Bros. have installed the following equipment: One 350-ton revolving type combination dragline and shovel, equipped with 155-ft. dragline boom with 6-yd. dipper, and 90-ft. shovel boom with 6-yd. dipper; one revolving type shovel equipped with 75-ft. boom and 7-yd. dipper; one gasoline dragline 2½-yd. bucket, 60-ft. boom; one 20-ton locomotive crane; two 60-ton electric storage-battery locomotives; one electric well drill, and two portable type air compressors. Each piece of equipment has been provided with a complete set of spare parts.

A complete machine shop has been constructed, equipped with the following tools, all purchased new for this work: One 20-in. lathe with 18-ft. bed, a 100-ton wheel press, a 24-in. draw cut shaper, a 450-lb. air hammer, cut off saw, band saw, bolt cutter, and a wet and dry grinder. All tools are operated by a direct connected motor and are well adapted for any machine work incidental to the coal field operation.

BUILDINGS IN THE CAMP

The camp consists of the following buildings: Two 50-man bunk houses, dining hall and kitchen, two-story office with sleeping accommodations for the office force, steam laundry, ice plant, storeroom and store, recreation hall, one 20-stall and one 3-stall garage, septic tank sanitary system, and ten small cottages for highly skilled employees and their families. All buildings are electrically lighted and steam heated from a central boiler plant.

In addition to the contractor's camp, the Improvement company has provided four cottages and one office for its employees, and a two-room school building.

The pit is approximately 7,800 ft. long, and will ultimately be cut to a width of 900 ft. The estimated coal available in this pit is approximately 6,800,000 cu.yd. Of this quantity, Foley Bros.' contract will cover about 6,300,000 cu.yd. stripping and 4,100,000 cu.yd. of coal loading. All but a small quantity of the stripping lies below the 50-ft. contour.

The pit was opened by cutting in the 350-ton machine as a dragline, taking out a through cut about 125 ft. wide on the bottom the entire length of the pit. The smaller machine is used as a coal loader and follows the stripping shovel on the level of the bottom of the coal bed. The loading track is laid on top of the coal.

The sequence of operation from the time the pit was opened follows: The stripping shovel was cut in at the point where the track enters the pit and moved south to the south end of the stripping. It then idled back overland to the point where it first cut in, and moved north to the north end of the pit, followed, of course, by the coal loading machine.

The stripping shovel reached the north end of the cut on July 1. It was then idled back and cut in again having been converted into a shovel. It will again

move north, taking a cut 88 ft. wide, casting the spoil over the loading track into the pit from which the coal has been removed.

It was estimated the relative volume of coal and overburden is such that the progress of the two machines would bring them to the north end of the pit simultaneously, but if necessary the intermediate width of the stripping shovel cut will be varied sufficiently to bring about the relative rate of movement required to accomplish this result. The loading shovel will then turn south, loading the coal stripped by the stripping shovel on the northerly cut, the stripper idling back to the original point to renew stripping in a southerly direction.

A meet will similarly be arranged between the two machines at the south end of the pit, which is estimated to be reached, at the present rate of coal consumption, about August, 1926. At this time a full cutting will be stripped ahead of the coal loader, this being the maximum spacing obtainable for single pit operation.

The output of the stripping shovel has been quite uniform for the different classes of material, so that with cross-sections and borings available the estimated location of the stripper on any given date can be predicted with a fair degree of accuracy and meets arranged to suit the coal consumption required by the railway company.

The operation of this field is under the general supervision of C. C. Anderson, general manager, Northwestern Improvement Co., Seattle, Wash. Lochren Donnelly, superintendent, is in direct charge of field operations, with headquarters at Colstrip. The engineering work for the opening and development of the field was done under the supervision of the chief engineer of the Northern Pacific Ry. Co.

Colstrip's Electrical Equipment Is Unusual

By V. A. Wolcott
Minneapolis, Minn.

OF THE MANY recent accomplishments in improved railroad operation, few are of greater importance than the opening last summer of the completely electrified open-pit coal mine at Colstrip, Mont., by the Northern Pacific Ry. Co. This is an important event as, for many reasons, it serves as a milestone in the economic progress of this industrial age. It is the first completely electrified open-pit coal mine in this country.

The electrical equipment involves many novel features of design, some of which were demanded by the unusual physical conditions to be overcome in accomplishing the successful issue of this undertaking.

This project, in addition to being an outstanding engineering and economic achievement, is an excellent example of conservation of national resources, by reason of the exclusive use of hydro-electric energy for all power operations.

The uncertain water supply in the field led to electrification. The little water available was alkaline. Steam equipment would, therefore, require either an evaporating plant, which was found to be high both in first cost and operation, or boiled water would have to be hauled in tank cars from Forsyth, a distance of 35 miles. After thoroughly considering the final cost per ton of coal mined and the continuity of mining operations, electrically operated equipment was deemed best adapted for that field. A power contract was made with the Montana Power Co., which extended its 55,000-volt, three-phase, 60-cycle power line from Billings, Mont., to Colstrip, a distance of 100 miles.

A Marion Model No. 360 electric stripper with a 155-ft. dragline boom and 6-yd. bucket and a 90-ft. shovel boom with a 6-yd. dipper was purchased. This machine weighed 475 tons including 100 tons of counter-

Off Comes the Cover

Standing on the bank is the huge stripping shovel which, with its counterweight, weighs 475 tons. This gigantic machine, assembled and put into service on the "roaring prairie" of southern Montana, is doing a tremendous job. Working first as a shovel and then as a dragline it has opened up the 7,800-ft. Colstrip pit, removing cover averaging 46 ft. from the huge deposit of 28-ft. coal which the Northern Pacific Ry. is mining for its own use to replace, largely, the coal it has been mining for years from underground operations at Red Lodge, Mont. Because of water shortage the whole strip mine is electrically operated.

weight. Standard General Electric Co.'s Ward Leonard, direct-current shovel control and power apparatus were used in its operation.

The coal loading shovel is a Bucyrus Model No. 175-B weighing 220 tons with a 75-ft. boom and a 7-yd. dipper, and has Ward Leonard, direct-current shovel control and apparatus. The motors on this shovel have separately excited shunt fields, which is a new and improved feature in electric shovel operation. The loading shovel loads coal directly from the vein into standard steel coal cars of 50 tons capacity.

The loading track is situated on the top of the coal vein and extends about 8,000 ft. along the edge of the coal pit next to the ground being stripped. The stripper boom, in depositing earth into the adjacent coal pit, continually works over this track. This fact largely determined the type of locomotive and haulage system used to deliver the coal trains from the shovel to Colstrip.

Trolley and third-rail systems, oil-electric, gas-electric, and electric storage-battery locomotives were considered. The electric storage-battery locomotive was wisely chosen, because it required no trolley which might come in contact with the stripper boom, and no third-rail offering a like menace. It was reliable, because it was rugged and simple in construction and operation. It was economical of power, low in maintenance, and either comparable in price with some types or cheaper than others. Two 60-ton, 175-volt General Electric storage-battery locomotives were purchased using lead storage batteries.

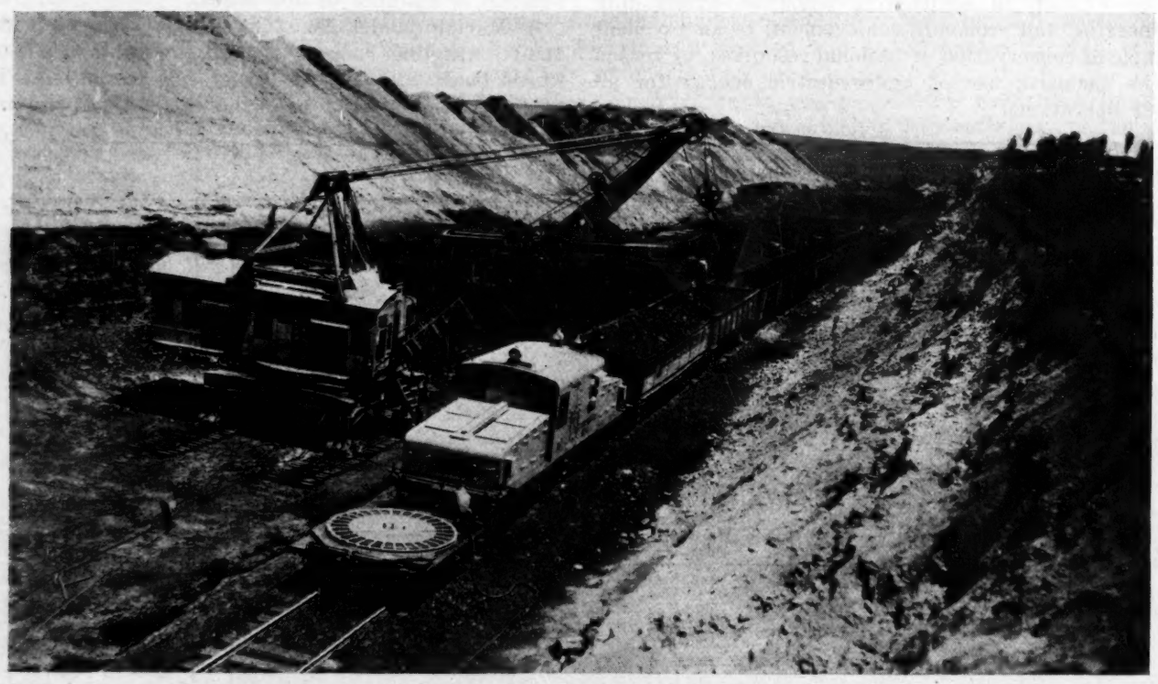
The nature of the mining operations again determined the design of the locomotive. The shovel, working in the coal which previously had been blasted, loads a 55-ton car in 6 min., or a 10-car train in approximately 1 hr. This affords time for charging the locomotive batteries while the shovel is loading the train. Each locomotive has its own motor-generator charging set in its cab.

The locomotive pulls the empty train into position for loading. A small truck on which is mounted a motor-operated cable reel is then coupled to the front of the locomotive. The cable is plugged into a socket in the side of the locomotive cab, and the other end connects to a bank of transformers on the shovel. The charging operation continues even while the locomotive moves the train from time to time in spotting the cars at the shovel. When the train leaves the shovel the cable-reel truck is disconnected from the locomotive and coupled to the next incoming locomotive.

The contractors are now equipped to produce easily an average of 3,000 tons per shift, and are prepared to operate 24 hr. per day, if increased output is desired. The original plans of the Northern Pacific were to use 300,000 tons of coal the first year, increasing the railroad's requirements until, at the end of 5 yr., it would be burning 1,400,000 tons per year. The economical results obtained by the use of this coal have encouraged the company to increase as rapidly as possible the number of locomotives using it, and it may be using 1,200,000 tons annually in the near future.

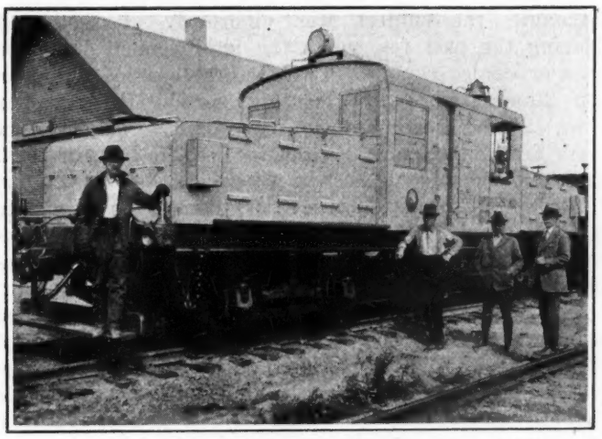
Shooting Is Heavy at New Colstrip Mine

How explosives are used in Colstrip is described by E. H. Simpson in the current issue of the du Pont Magazine. Mr. Simpson says: "In shooting the overburden, all holes are chambered with ammonia dynamite, 60 per cent strength, sufficiently to permit loading ½ lb. of railroad grain blasting powder per cubic yard of overburden, which includes the 'wash' as well as the



Not a Burst of Steam or a Cloud of Smoke Is to Be Seen in the Colstrip Mine

The photograph shows the shovel loading coal from the 28-ft. bed directly into cars. The 60-ton battery locomotive is accompanied by its cable-reel car. By means of this cable and the motor-generator set in the cab the locomotive recharges its batteries during each of the 1-hr. periods when the shovel fills a 10-car train. When the train is loaded the locomotive sets out the reel car for the next locomotive's use, and hauls its train out of the mine to the Northern Pacific's track nearby.



Sixty-Ton Storage Battery Locomotive

This type is used by Foley Bros. to handle 10-car trains of railroad equipment into and out of the pit for direct loading by the shovel.

solid rock. Each hole is primed with one electric blasting cap in one 1¼x8-in. cartridge of ammonia dynamite, 40 per cent strength. Large areas are fired simultaneously, using either a blasting machine or power current.

"With the coal uncovered, the loading shovel is carried on a track in the center of the pit and cleans up a face 112 ft. wide at the top and 88 ft. wide at the bottom, with the center of the face 25 ft. in advance of the corners at each side. This semi-circular face is cut to the radius of the shovel.

"To shoot the 28-ft. coal, one line of six holes 17 ft. apart is drilled on the same curvature as the face 21 ft. back, and two additional holes along each rib or side line of the cut. All holes are drilled to a depth of 25 ft. or within 3 ft. of the bottom of the coal vein. All holes are chambered, and the explosive charges are confined at the bottom of each hole.

"Conditions vary from dry to extremely wet. Gelatin dynamites, 25 per cent strength, are used when the work is wet. Each hole in the back row is loaded with 40 lb., and the side or 'crib' holes with 18 lb. each, making a total of roughly 300 lb. per round. When the work is dry, blasting powder, R.R.P. granulation, is loaded, two kegs to each back hole and one keg to each rib hole, or a total of 400 lb. All holes are primed with electric blasting caps and fired simultaneously. In either case the explosive charge breaks up the coal sufficiently for economical loading."

This community, Colstrip, says Mr. Simpson, where one's vision is checked only by distant hills, and where a year ago the only evidence of civilization was a lone log cabin, is today a hustling coal town.

New Paste Promises Decided Battery Improvements

Heretofore one of the chief disadvantages inherent to the storage battery has been its great weight in comparison with its capacity for storing energy. But little improvement in this regard has been made lately.

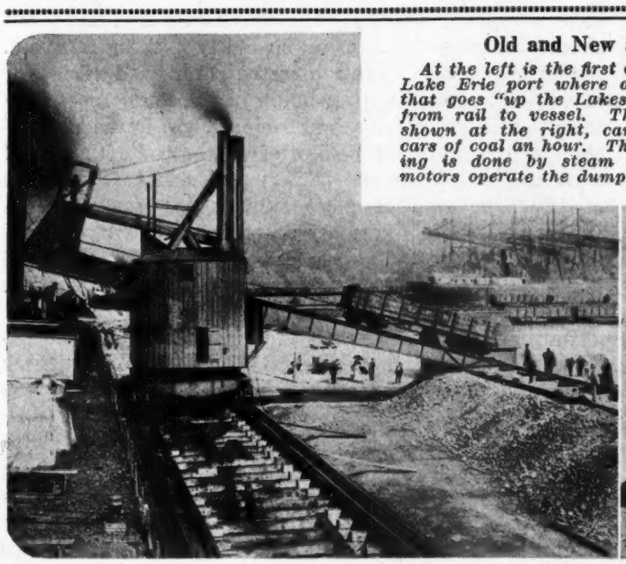
Within the comparatively recent past, however, a new substance or binder for the lead salts employed in battery manufacture has been developed in England, and accumulators made with the new paste are now undergoing exhaustive tests in London. While the complete results of these trials are not and cannot be fully known until the tests are concluded, enough has been done to justify certain claims of superiority for the new substance and the batteries in which it is used. Both in first cost and capacity the new batteries have great advantage over the older well-established types.

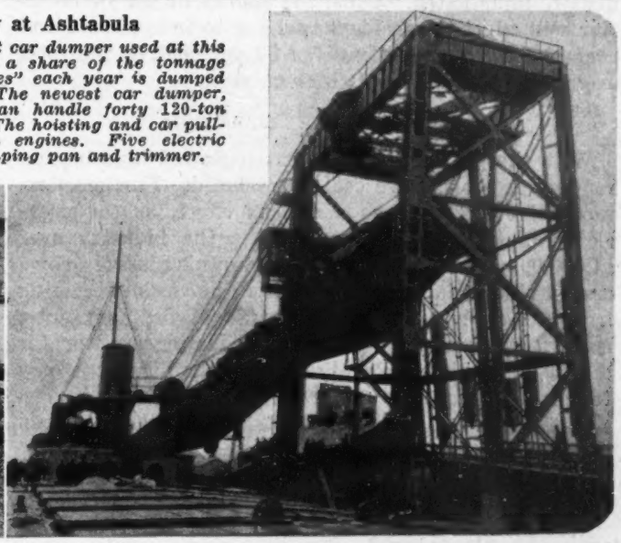
Improvements of the new battery over the old lie chiefly in the plate employed. This combines large capacity with an ability to withstand high rates of charge and discharge. The new binder permits the manufacture of a plate of great mechanical strength and porosity as well as freedom from sludging. The strength and flexibility of the active elements are such that the grid serves practically as an electrical collector only.

Results of the tests so far conducted would indicate that the cost of the new battery will be appreciably less than that of its predecessors; that its capacity for a given weight will be at least 35 per cent greater; that its charging time will be shorter and its life longer, and that it evolves no dangerous or harmful fumes. All of these foreshadow traction, transportation and lighting possibilities heretofore unobtainable through the use of electrical accumulators.

Old and New at Ashtabula

At the left is the first car dumper used at this Lake Erie port where a share of the tonnage that goes "up the Lakes" each year is dumped from rail to vessel. The newest car dumper, shown at the right, can handle forty 120-ton cars of coal an hour. The hoisting and car pulling is done by steam engines. Five electric motors operate the dumping pan and trimmer.





Better Underground Lighting Aids British Mining

Advances in Method and Equipment Have Been Made to Reduce Cost of Coal by Lowering Accident Rate and Raising Efficiency

By James Cooper
Assistant Professor of Mining, Heriot-Watt College, Edinburgh, Scotland

Efforts are being made in the British coal fields to lower extraction costs. Better illumination is generally regarded as one underground factor contributing to this reduction. Illumination recently has been the subject of extensive research by a government committee which has issued many valuable reports.

In Great Britain, out of the 800,000 safety lamps used, about 350,000 are of the electrical type and the remainder of the oil type. The electric lamps consist of two classes, namely the hand and the cap lights.

In Scotland where many open-flame cap lamps are used, and where in gassy mines the electric cap lamp is rapidly being installed, the output per man is higher than in any other area of the British coal fields.

The evidence clearly shows that a cap lamp is more advantageous than a hand lamp, the reason being that when the lamp is on the cap it is in the position in which it can most effectively assist the eye of the underground worker.

In deep mines, owing to high temperatures, the men frequently wear only shoes and a loin-cloth, and with the battery of the cap lamp placed on the hip and secured by a belt, small pieces of mineral get between the skin and the cloth so that the battery chafes the wearer with every movement of the body.

According to recent statistics the 1,200,000 men engaged in mining have 180,000 accidents of sufficient severity to cause them to absent themselves from work for more than 7 days. How does the standard of illumination in the mines affect these figures. It is accepted by all who have had underground experience that the stronger the light the better it will enable men to see the roof and so avoid the ever-present dangers of falls of slate; that all actions will be speedier as the objectives are more easily seen, and lastly, that there is more eye strain when the perspective is inadequately illuminated. Thus, the quality of the illumination will affect the accident rate due to falls of roof and coal, this class accounting for 50 per cent of the total accidents occurring in British mines.

Enables Bigger Production

With the greater activity that improved illumination renders possible, more coal is produced. Furthermore, ineffective lighting has a serious effect, as the prevalence of nystagmus already costs the industry over £1,000,000 a year. At the same time this disease brings undesirable social evils in its train, the victim becoming irritated at his inability to work at ordinary jobs. Lastly, it opens up an avenue for malingering or for the suspicion that the real victim of the disease is only feigning an inability to work.

The passing of the Order in 1913 requiring that only "approved types of lamps" be used in mines where safety lamps are employed, caused lamp makers to tackle the problem of providing a high-grade article.

When the war came a few months later, progress naturally was delayed, but on the cessation of the struggle, the subject was vigorously attacked and during the past few years the improvement in lamps has proceeded rapidly. Two factors focussed attention on illumination: (1) The high production cost per ton; (2) the growing cost of nystagmus. Compensation rose from one penny per ton in 1913 to 3.6d. in 1924.

The problem could best be attacked in two directions, first, by the formation of a strong committee to initiate and make researches, basing their reports on the results, secondly, by encouraging new ideas in the construction of both oil-flame and electric safety lamps.

The findings of the committee have been published in a number of reports in which the most important facts are (1) that the illumination given by lamps, both oil and electric, used underground, should be greatly increased; (2) that 20-mesh gauze should be used in place of the 28-mesh fixed by Davy over a century ago. This change of gauze mesh, which has been approved by departmental authority, is an epoch-making advance for the mining industry and in more normal times would have elicited much praise from all parties in the coal fields.

Larger Mesh Gauze More Efficient

Its 400 apertures to the square inch of gauze surface, in place of the 784 apertures customary in the old type of gauze, increases the quantity of air admitted to the flame. According to the report of the committee, the illumination, which for the same lamp was 0.5 cp. with the 28-mesh gauze is increased to 0.93 cp. with the 20-mesh gauze.

The report advocates also a 4-volt battery in place of the present 2-volt, but this can be obtained by a reintroduction of the alkaline cell of the Edison type, as the lead battery still in general use would be much too heavy if its capacity were doubled.

In recent months the activities of the lamp makers have been no less fruitful. Several firms are now constructing the combustion-tube oil-flame lamp made familiar many years ago by the Hailwood company. Recent tests have shown that this device gives satisfactory results, and the addition of the 20-mesh gauze will raise its candlepower to such a degree that it will be a formidable competitor to the electric lamp as at present constructed.

The shadowless electric lamps now being developed have movable reflectors, the standards and cap that shaded the glass in lamps of the old type being removed. Attention is also being directed (1) to devices for rapidly changing lighting bulbs in the lamp room, (2) to the replacement of a liquid electrolyte by an unspillable jelly, (3) to the design of better contacts and of a rigid position for the battery and (4) to the choice of the best kind of glass surface to prevent glare.

The last point is most important, canary-colored, dioptric, and frosted globes all being tried. The frosted glass will probably be found the most suitable, as there is uniform illumination and no shadow effect.

Individual collieries are also initiating new departures. One mine in the Scottish area, having a thick seam and a good roof, has suspended lamps along the machine-cut face.

This installation is in a deep mine worked with open-flame lamps. The current is transformed from 500 to 50 volts in an oil transformer, located near the working face, and is led by cab-tire cable, tappings for lamps being provided at 10-ft. intervals. The lamps are of 25 cp. and have 30-volt metallic filament with

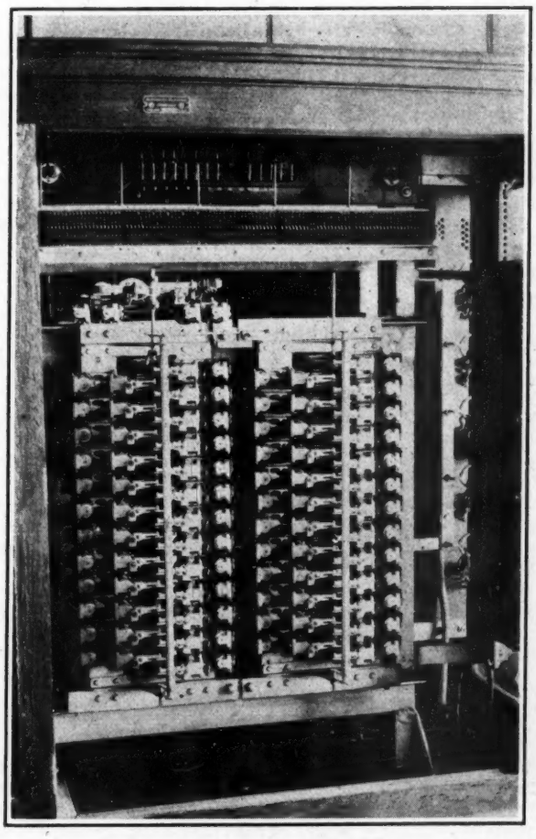
frosted glass globes encased in the usual underground type of protected, hermetically-sealed fittings. This installation is much appreciated by the men at the face, and a large tonnage per man shift is being attained.

The subject of mine illumination in the past has received little skilled attention, but the present economic stress has made the effort to advance it almost national. There is now, fortunately, proper recognition of its importance. Operators not only recognized its influence on production costs but also the fact that it has much bearing on the social well-being of underground workers.

Telephone Problems Are Solved by Automatic System

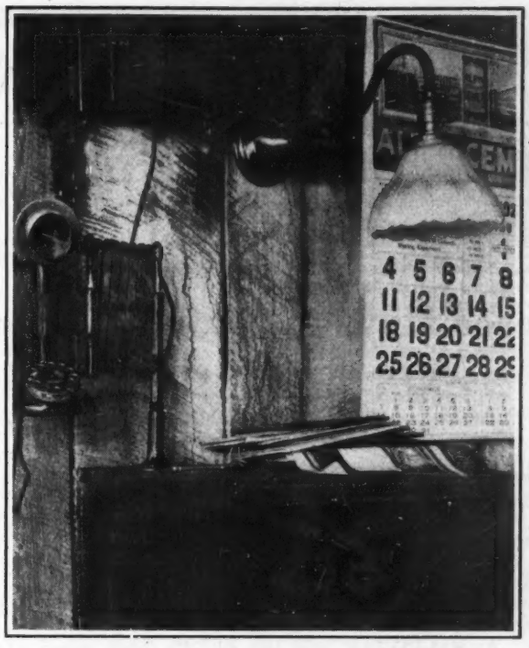
Inadequate telephone service is common at many mining operations. The usual faults are, too few phones, too many phones on a single line, or a lack of night switching service. At those isolated mines which have but one line connection with a public service telephone company, it is the practice for the coal company to install a number of telephones of their own. These are usually of the magneto type. If fifteen to twenty of this type of phone are connected to one line the service is rather unsatisfactory because of the annoyance of frequent ringing and because this number is near the limit that can be made to operate on one line.

With but eight to ten phones on a line, this simple system is satisfactory except for the fact that there is a lack of privacy in the conversations. To have privacy between certain phones requires a separate line for those phones, and this in turn requires the installation of duplicate phones, or of a switchboard. The manually operated switchboard is not entirely satisfactory because of the expense of employing operators. On account of this expense, but few coal companies provide 24-hr. switching service. There is an operator at the board for ten or twelve hours but it often happens that telephone service is badly needed during other hours especially when an emergency arises.



Provides All-Night Service

This automatic telephone switchboard is that used by the Raleigh Coal & Coke Co. at Raleigh, W. Va. The entire switching mechanism is contained in a cabinet about the size of a four-section bookcase.



An Unusual Sight in a Mine Shop

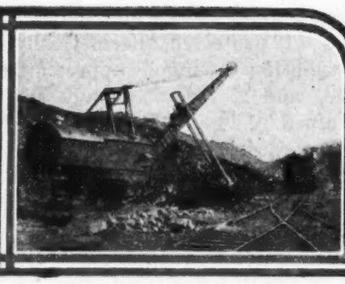
The calling dial can be seen on the base of the transmitter stand. The automatic phone is always ready for service and there is no waiting for an operator.

Because of these difficulties in obtaining an economical yet satisfactory telephone service for an isolated mining operation, some of the larger coal companies have installed automatic telephone systems. One example of such an installation is that of the Raleigh Coal & Coke Co. at Raleigh, W. Va. This installation, which consists of an automatic switchboard and approximately fifty phones, has now been in service for over four years and in that time has demonstrated conclusively that it is the only satisfactory and economical system for a mine operation. The service meets all requirements for the twenty-four hours of the day, yet there is no expense for operators.

It is true that the automatic switchboard is more complicated than the manual type, however it has been perfected to a point where there is little chance for difficulty. R. B. Holmes, electrical engineer for the Raleigh Coal & Coke Co., states that he has experienced little trouble with the automatic system. He makes it a rule to inspect the switchboard once each day. At the time of this visit he also gives the storage batteries any necessary attention.

Because of the fact that there is always a voltage on the line and because of the liability of line trouble inside of a mine, the automatic phones are not used inside. Instead, magneto phones with no connection to the automatic system, are installed between the inside and the repair shop on the outside.

News Of the Industry



Peace Move in Anthracite Strike Foreseen When Pinchot Invites Lewis and Inglis to Conferences

Governor Gifford Pinchot of Pennsylvania has once again stepped into the anthracite strike picture with invitations to John L. Lewis, president of the United Mine Workers, and W. W. Inglis, president of the Glen Alden Coal Co. and chief of the operators' section of the scale committee, to confer with him. As was the case with the Milford conferences several weeks ago, the Governor will meet the opposing leaders in separate parleys. He journeyed from Harrisburg to Philadelphia yesterday to sound out Mr. Lewis and expects to talk with Major Inglis at the Capitol today.

This latest development follows closely upon activities of the Rev. John J. Curran, of St. Mary's Roman Catholic Church of Wilkes-Barre, who discussed the situation last week with Mr. Lewis and Vice-President Philip Murray. Father Curran's name has been linked with the suggestion that a basis of settlement might be found in a flat 5 per cent increase and a "modified" form of the check-off. That the operators had proposed or entertained such a proposition was denied by them. At the conclusion of his talks with Messrs. Lewis and Murray, Father Curran declared that the next move was "really up to Governor Pinchot." He added that he believed the Governor would call both sides together "before very long."

Criticizes Operators

Commenting upon the outlook as he saw it, Father Curran said:

"Perhaps the operators are a little stubborn. During the past several weeks I have heard things that make me think they are. The men are fair. They are not arbitrary. They are willing to stand by the public, but do not want to concede all their rights."

This theme was re-echoed by Mr. Lewis at an address at Nanticoke on Nov. 5. The head of the mine workers asserted that the miners did not relish strikes, but had been forced to call a suspension to protect their rights because of the "unreasoning" attitude of the producers. "There has been no change in the attitude of the operators, no change in their spirit of resistance, and no change in their policy to take all and give nothing." Mr. Lewis stated that he had had a recent conference with Major Inglis. This conference was arranged through an undisclosed third party. No details as to what took place were volunteered by either of the conferees.

In the meantime, as told elsewhere in this issue of *Coal Age*, an active campaign to replace anthracite with semi-bituminous coal is under way in New England, notwithstanding the fact that stocks of hard coal in the hands of the consumers and average reserves in retail yards probably are larger than in any other section of the country. Some splint coal also is moving into New England for domestic purposes despite the absence of through rates.

Urge Buying of Soft Coal

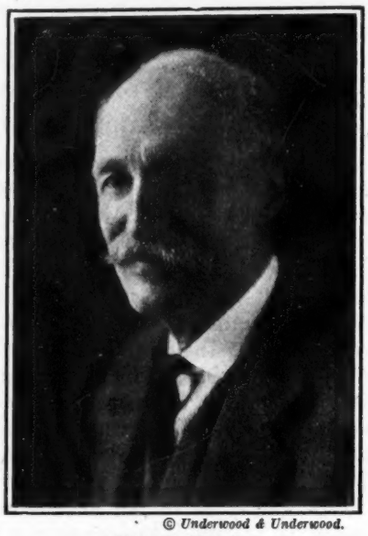
In New York, public authorities are urging consumers whose stocks of hard coal are low to put in a supply of bituminous. The report of John Hays Hammond to the President that the reserves of anthracite now available would last at least two months, it was pointed out, was statistically correct, taking the coal-burning section as a whole, but that offered no comfort to the householder who had no anthracite in his cellar. "Those in need," remarked George F. Eltz, a member of the New York Coal Commission, "are in no less a predicament because of the safety of some one else."

The anthracite situation will be discussed next Tuesday by Ellis Searles, editor, *United Mine Workers Journal*, and Walter Gordon Merritt, general counsel for the Anthracite Operators' Conference, at a luncheon of the committee of the Department of Industrial Relations of the National Civic Federation at the Lawyers' Club, New York City.

At a recent meeting of the district board of the United Mine Workers at Scranton a decision was reached against granting the petition of certain washeries in this region to turn out coal and sell the same to schools. The labor leaders went on record as opposing the production or shipment of any coal during the anthracite suspension. About a week before this decision was arrived at permission was granted the Traders' Coal Co., at Plains, to sell 1,500 tons of coal to the public schools of Plains township.

All the surplus coal in stock at the Hauto storage yard has been sold by the Lehigh Coal & Navigation Co. About a week ago there was about 100,000 tons in small sizes at this plant but this has now been cleared up.

Now that the cold weather is putting a stop to work on highways in the hard-coal region many anthracite miners who have been working since the strike started will be thrown out of jobs. This condition is expected to result in many of the rank and file launching efforts to have their leaders resume wage negotiations with the operators.



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Gifford Pinchot

Broadens Inquiry on Rates On "Substitute" Fuels

The general investigation ordered by the Interstate Commerce Commission into rates on anthracite and other fuels to New England and Middle Atlantic States has been further broadened to cover:

(1) Joint rates and through routes on splint and high-volatile coal from Kanawha and Coal River fields;

(2) Extension of recently established rates on prepared coal to all sizes of low-volatile;

(3) Establishment of rates from semi-anthracite mines in Virginia.

A hearing on these questions will begin before Commissioner Campbell and Examiner Koch of the Interstate Commerce Commission in the rooms of the Merchants' Association, New York City, this morning at 10 o'clock.

West Virginia Smokeless Producers Plan Campaign to Capture New England

By Sydney A. Hale
Special Contributor, *Coal Age*,
New York City

First steps in an educational campaign to capture the New England domestic market were taken Nov. 6, when a meeting of the Smokeless Coal Operators' Association of West Virginia, held at the Copley-Plaza Hotel, Boston, Mass., authorized the immediate establishment of a coal service bureau in Boston. In this way the semi-bituminous producing interests of southern West Virginia hope to use the anthracite strike as a means of permanently weaning away a large part of the New England domestic trade from the use of hard coal.

The primary functions of the bureau will be to teach household consumers how to burn low-volatile coals successfully, to handle complaints received by retail distributors from customers experimenting with this fuel, to police shipments to prevent the sale of coal from other districts as West Virginia smokeless and to co-operate with the retail trade and with the various quasi-official and commercial bodies now functioning in New England as a result of the anthracite strike.

Robert H. Gross, president, White Oak Coal Co.; R. L. Wallace, Boston representative of the Pocahontas Fuel Co., and Charles P. Hutchins, Boston representative of W. C. Atwater & Co., have been named a Special New England Service Committee to handle all questions with respect to the creation, personnel and scope of the bureau. The cost of the bureau will be financed out of the funds of the association.

If the Boston bureau proves as successful as its projectors anticipate, supplementary service units will be established at Springfield and Worcester, Mass.; Providence, R. I., and New Haven and Hartford, Conn. Contingent upon the success of the efforts now under way to persuade the Interstate Commerce Commission to direct a more favorable all-rail basis to New England points on lines other than the New York, New Haven & Hartford R.R., additional bureaus are planned. Should the Commission extend the new rates to cover the all-rail shipment of mine-run, still greater expansion is in view.

The question of all-rail rates on mine-run and the application to open up more gateways to the all-rail movement will come up at a hearing to be held in New York City today before Commissioner Campbell. Establishment of a reasonable all-rail basis on mine-run, say the operators, would enable the producers of low-volatile coal from West Virginia to guarantee a monthly minimum of 450,000 tons, instead of 135,000 tons, as is the case while the rates are limited to prepared sizes.

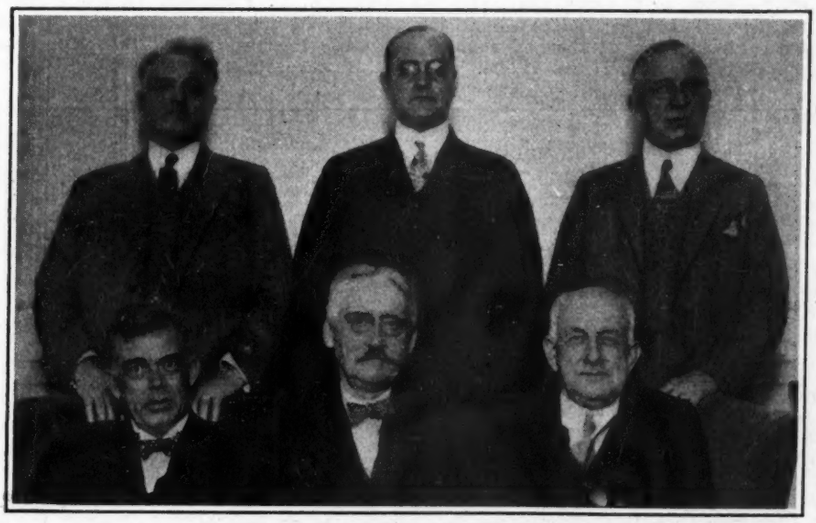
The decision to establish the service bureau was the outgrowth of the activities of the advertising committee of the association. This committee, with Holly Stover, Chicago, as chairman, had been making a study of general advertising as a basis for recommendations on a national publicity campaign. The possibilities of entrenching smokeless in the New England market, however, and the representations made to the operators of the present necessities of that section of the country convinced the committee that any national project should be held in abeyance while a special, energetic drive was made on New England.

The operators' association, at its regular monthly meeting, which was shifted to Boston to give the members closer contact with the situation, unanimously approved the proposals of the Stover committee. It also heard Eugene C. Hultman, chairman of the Massachusetts Commission on the Necessaries of Life, who substituted as a speaker for Governor Alvan T. Fuller. The Governor, in expressing regret at his inability to be present, wrote the association a letter in which he reiterated that New England was in a revolt against anthracite.

"If you producers of smokeless coal," he said, "can restrain your greed; if you can disregard the present as a gambling opportunity to take advantage of the public's necessity; if you will adopt an honest and liberal and considerate policy, you have a wonderful opportunity to entrench yourselves in this New England market."

Mr. Hultman stressed the same theme. If prices are boosted, he declared, until retail quotations are almost as high as on anthracite, "and you are the only people who can prevent it, it means that we are going to have a flash in the pan, the people will feel sore and be disgusted with the whole business and demand that the government control the coal industry, and the householder will go back to anthracite the moment the strike is over. I want to help anyone who wants to help us. You have volunteered to be our fuel savior in the present emergency. In the past other fuel saviors have perhaps saved our lives, but in the process they have taken our pocketbooks."

The association met this plea on prices by adopting a resolution condemning the pyramiding of profits in resales. The resolution recited that it had been reported that smokeless had been resold as many as five times between the mines and the final purchaser, resulting in unreasonable prices to the consumer and unjust condemnation of the operator.



Advocating the Use of West Virginia Smokeless Coal in Boston

Executive committee of the Smokeless Coal Operators' Association of West Virginia, who are seeking a New England market for their product. In the front row, left to right, are: Holly Stover, Chicago; William Ord, Landgraff, W. Va.; William C. Atwater, New York; back row, left to right: John Laing, Charleston, W. Va.; O. L. Alexander, New York, and Robert H. Gross, Boston.

Will Work with Retailers

Vigorous denial of the intimation that the West Virginia smokeless producers will go into the retail coal business in New England if the established dealers do not cooperate fully in the present campaign to sell semi-bituminous coal in the Northeast was made by Robert H. Gross, chairman of the Special New England Service Committee of the Smokeless Coal Operators' Association of West Virginia, in a statement to *Coal Age*.

"The matter of retailing coal by the association or any of its members," declared Mr. Gross, "has not been discussed or considered and we are glad to take opportunity of denying these unfounded rumors. It is the purpose of the West Virginia operators to sell our coal through the recognized channels, of which the present retail dealer is an all-important factor, and we know that the retail dealer will function just as effectively in this present emergency as he has in the past."

Two Oklahoma Mines Reopen At 1917 Scale

The Osage Coal Co.'s mine No. 5, at Krebs, Okla., opened for work Nov. 4 with a small force of laborers, it was reported from the office of the company. The company is one of several in this area that have been able to hire enough men on the 1917 wage agreement to operate since Federal Judge R. L. Williams issued an injunction that prohibits striking miners from picketing with such large forces near the entrance of the mines. Osage mine No. 5 has been closed since Sept. 1, when the general strike of union men in District 21, was issued by William Dalrymple, president of the organization.

The large Wise-Buchanan mine at Henryetta also opened last week on the 1917 scale, according to information received from that town. The mine at full capacity can employ 200 men. It was reported that fifty showed up for work the first day mining operations were resumed.

To Open Oklahoma-Arkansas Mines at 1924 Scale

Several important mines in the Oklahoma-Arkansas coal fields are to reopen immediately on contracts calling for the 1924 wage scale, it has been announced by William Dalrymple, president of district No. 21, United Mine Workers.

The Central Coal & Coke Co., operating mines in eastern Oklahoma and western Arkansas, is said to be one of the larger properties gained over by the union. One of the properties is at Calhoun, near Poteau, but the largest is said to be the Jenny Lind mine, in Arkansas. Approximately 315 miners will be employed in the Jenny Lind mine, according to a telephone conversation with Superintendent Boyd, says Dalrymple.

The Buck Creek Coal Co., operating mines near Panama, Okla., also will open under the new scale, union officials announced. Several other contracts are being negotiated, according to statements of the same officials.

In the McAlester-Hartshorne-Wilburton field practically all coal is being mined open shop. The larger mines report larger working forces. Operators declare that 165 men are at work at Rock Island mine No. 12, at Hartshorne, and Rock Island mine No. 10 also reports gains in its working force. Strikers, however, declare that none of the workers will accept work at the terms offered by mines operating non-union.

Bethlehem Corp. Mine Opens at 1917 Scale

The Bethlehem Mines Corporation resumed operations at the Marianna mine, near Bentleyville, Pa., Nov. 5 with a force of 46 men, which was increased to 150 the next day. Unofficial reports said the company had brought in a total of 400 men to work the mine, which is being started on the 1917 scale. This mine had been idle more than a year. The company owns many other large mines in the Pigeon Creek Valley and is expected to open others on the same wage basis. The mining company is a subsidiary of the Bethlehem Steel Corporation and the superintendent reports directly to Johnstown.

No disorder marked the opening, but Sheriff Otto Luellen, of Washington County, was prepared to cope with any situation that might arise, as the mine is located in the heart of a strong union district.

Survey of Coal Stocks On Dec. 1?

A survey of coal stocks as of Dec. 1 is being contemplated by the Department of Commerce. Although a definite decision has not been reached, C. P. White, Chief of the Coal Division, announced on Nov. 7, the proposal is under consideration. The last survey was of June 1. Mr. White plans to put in operation, eventually, a program for quarterly surveys. Should a survey as of Dec. 1 be taken, it probably would be between Jan. 5 and 15 before the data would be ready for publication.

In September 931,462 tons of coal was mined in Colorado, as compared with 939,816 tons in the corresponding month of 1924. Production during the first nine months of this year totaled 6,841,651 tons, or 388 tons less than was produced during the corresponding period last year. State Coal Mine Inspector James Dalrymple announces. An average of 11,477 men have been employed in and about the coal mines of the state so far this year, and the number of days worked per mine has been 126.9. The number of men employed in September was 11,003.

Montour No. 10 Resumes At 1917 Scale

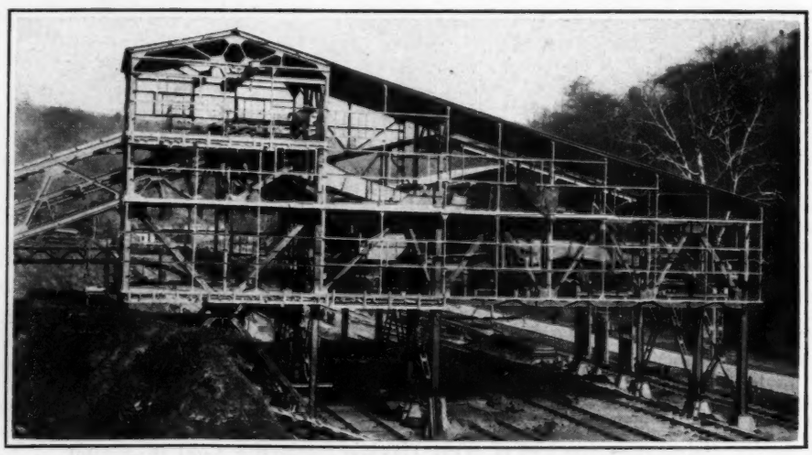
Operation of mines under the 1917 wage scale by the Pittsburgh Coal Co. came a step nearer Pittsburgh proper Nov. 9, when the company resumed operations at Montour No. 10 mine, at Library, 10 miles from the city, on the Montour R. R. The pit was opened with 41 men at work.

The company now has a total of four mines working on the 1917 scale in the Pittsburgh district, one in each of these counties: Allegheny, Fayette, West Moreland and Washington. With the opening of the mine at Library the company has 749 miners digging coal in the Pittsburgh district and 500 men at Pomeroy, Ohio, all on the 1917 scale.

It is not expected that any coal will be loaded at the Montour mine for several days, as the intervening time will be occupied in cleaning up. Montour No. 10 is one of the newest and most up to date plants of the company, producing a high grade gas and steam coal. The tipple was constructed in 1919. It is planned to bring the mine up to a daily production of about 2,500 tons and to employ 500 men. The mine was closed down in April, 1925. Twenty deputies of Sheriff Woodside of Allegheny County guard the mine.

The Pittsburgh company now has thirty-six idle mines in the Pittsburgh district and the company again emphasizes that any of them will be opened as soon as a sufficient number of men express a desire to return to work.

The American Mining Congress has appointed the following committee to consider the use of structural steel for mine timber: H. W. Montz, Lehigh Valley Coal Co., Wilkes-Barre, Pa.; J. M. Clark, the E. E. White Coal Co. Glen White, W. Va.; M. D. Gibson, Bertha-Consumers Co., Pittsburgh, Pa.; D. W. Blaylock, Madison Coal Corporation, Glen Carbon, Ill.; F. H. Frazier, Maher Collieries Co., St. Clairsville, Ohio; R. L. Twitchell, Carnegie Steel Co., Pittsburgh, Pa.; Geo. J. Hahn, Lorain Steel Co., Johnstown, Pa.; Geo. O. Richardson, Bethelehem Steel Co.



Warden Tipple of Pittsburgh Coal Co. Under Construction

The Pittsburgh Coal Co. is embarked on a program of concentration and reconstruction that involves the erection of large units. This is the first fruit of this program which will result in cheaper and better coal.

Thinks Anthracite Strike Will Make Soft Coal Universal Domestic Fuel; President Urged Not to Interfere

By Paul Wooton
Washington Correspondent of *Coal Age*

The President has been informed in detail by John Hays Hammond as to the results of the efforts by the New England governors to meet the deficiency in anthracite by supplying substitutes. Mr. Hammond's observations as chairman of the New England Governor's Coal Committee are of more than sectional interest. He believes communities elsewhere could profit from what has been done in New England and that the task would be easier because they are less exposed to interruptions of fuel supplies.

Mr. Hammond is not disposed to minimize the amount of anthracite production which may be lost. He feels that the country should be prepared for further months of possible suspension. When the strike began Mr. Hammond was inclined to think that the miners and the operators would not be so blind to their own interest as to give their market away to bituminous coal, but now that each seems disposed to fight their battle to the bitter end the public must be prepared, he feels, to use bituminous coal not for a few weeks but throughout the winter.

Mr. Hammond told President Coolidge that the greatest hope of meeting this strike is for the administration to continue its policy of hands off and for the consumer to lay in ample reserves of substitutes. He hopes that New York and New Jersey will follow the example of New England and impress upon the individual citizen that it is his duty under these conditions to place his order for substitutes, rather than hold off buying in the hope that appeals to Washington will accomplish something. Washington cannot mine anthracite.

No great amount of pressure for a political patching up of the strike will come from New England, Mr. Hammond believes. The spirit of the people has been aroused to the point where he believes they are willing to undergo whatever sacrifice is necessary to free themselves from the annual danger of having to go through just what they are enduring this winter. He cites the fact that for every letter received by the Governors' committee complaining of the inconvenience of soft coal nine have come in glorying in the fact that the writer has found a way to use soft coal successfully in his hard-coal equipment. The people have made up their minds, Mr. Hammond believes, to hold the gain they feel they have made thus far and refuse longer to be at the mercy of an industry that can give no adequate assurance as to continuity of supply.

It also is beginning to dawn on the people of New England, Mr. Hammond reports, that bituminous is bound to be the coal of common use in the future. In addition to the realization that continuous supply probably cannot be guaranteed the people are sure that anthracite will become more and more expensive. They are finding even now that they can get the same amount of heat for two-thirds the money.

The people in New England, Mr. Hammond says, have more vision than the dealers. It has been impossible to arouse much enthusiasm among them in the efforts to supply substitutes. Profits are larger in the handling of anthracite and the business is so satisfactory that they hate to see bituminous coal get started, Mr. Hammond told the President. They also have to consider the uncertainty of the situation and are not inclined to put in stocks which might prove unsalable were the strike to end.

Knowing the inborn repugnance of the people of New England to coercion, Mr. Hammond is sure they are through paying tribute, but he fears that they are underestimating the necessity of being as forehanded as possible in providing themselves with substitutes. Some of those who have gone over permanently to the use of soft coal are buying on a hand-to-mouth basis, anticipating a settlement of the strike, when they expect bituminous prices to fall. There is certain to be trouble unless soft-coal requirements are kept moving steadily in maximum volume.

Producers Have Responsibility

Producers of soft coal and coke have a definite responsibility in this situation, Mr. Hammond asserts. They owe it to the people whose market they want and they owe it to their own stockholders to use every influence to keep prices down. The Governors' committee has been careful to point out that soft coal has been selling at abnormally low prices and that somewhat higher prices than have been prevailing are justified and necessary to a healthy industry. Were prices allowed to get out of hand it would tend to confirm the one-fuel habit.

Mr. Hammond reports that the smokeless producers are preparing to give demonstrations throughout New England in the use of that coal. The coke producers are arranging for the movement of increasing quantities of their product into New England. Plans are being made for the preparation of run-of-mine bituminous at New England points.

Governor Fuller, of Massachusetts, estimates that, in addition to convincing New England that it is not dependent on anthracite, the Governors' committee is responsible for savings to consumers of no less than $4,000,000 to date.

While Mr. Hammond has closed his summer home at Gloucester and has taken up his residence at his winter home in Washington, he expects to make frequent trips to New England this winter so as to keep in close touch with the situation there.

Nova Scotia Coal Inquiry Under Way Soon

The commission appointed by the Nova Scotia government to inquire into conditions in the Nova Scotia coal industry, comprising Sir Andrew Rae Duncan, of London, England, chairman; Dr. H. P. Macpherson, president of St. Francois Xavier University, Antigonish, N. S., and Hume Cronyn, of London, Ont., held their initial sitting at Halifax, Nov. 3. Many officials of the British Empire Steel Corporation, representatives of the provincial government and the United Mine Workers were in attendance.

The first step in the proceedings will be an inspection of several of the collieries and it will be several days before witnesses will be called and the formal inquiry commenced. In the meantime officials of the corporation and the miners' union have been asked to prepare lists of the witnesses they wish called.

Beware of Mr. Pearson

J. C. Pearson, alias Fidelity Coal & Coke Co., alias Globe Coal & Coke Co., Pittsburgh, Pa.; alias J. D. McCabe Coal & Coke Interests, New York, N. Y.; alias Canadian-American Coal & Lumber Syndicate, Chicago, Ill.; alias Pittsburgh - Cleveland Coal Co., of Cleveland, Ohio; alias J. M. Clarke and A. E. Van Arman, according to a report by the Post Office Department, is under indictment in the U. S. Court, Western District of Pennsylvania, for fraudulent use of the mails in connection with the operations of the Fidelity Coal & Coke Co., together with his partner, G. H. Runstadler, of Detroit, Mich. Runstadler has been arrested, but notwithstanding the fact that the indictment was returned at the May term of U. S. Court in 1923, Pearson has not been arrested.

Under his various aliases Pearson has promoted a number of schemes since he left Pittsburgh. His mode of operation was to establish credit with various coal companies in the states of West Virginia, Kentucky, Pennsylvania and Ohio, and have these operators ship coal to Detroit, Cleveland, New York, or wherever he might desire, and then sell the coal for whatever he could get and appropriate the money to his own use.

With his partner he has obtained over $180,000 from customers in the operation of the Fidelity Coal & Coke Co. and perhaps $50,000 from operations by the Globe Coal & Coke Co. Inspectors at New York say that Pearson realized something like $50,000 while operating in New York, and while he was in Cleveland last January he got in the vicinity of $30,000.

The Post Office Department at Pittsburgh is looking for Pearson, who is said to be about 34 years of age, 5 ft. 11 in. tall, rather stout, now wearing a mustache, an inveterate talker, fond of good living, stops at good hotels and is quite a ladies' man.

Plans Ready for Meeting of West Virginia Institute

Plans for the meeting of the West Virginia Coal Mining Institute at the Hotel Morgan, Morgantown, on Nov. 24 and 25, are practically completed. One of the features of the opening day will be a paper on "The Smokeless Coal of West Virginia," by D. B. Roger, assistant geologist, West Virginia Geological Survey. Other papers which will be presented will be announced later. A banquet will be held in the evening, with addresses by men of wide experience in the coal mining industry.

The second day will be devoted to inspection trips, including a visit to the Nemacolin mine of the Buckeye Coal Co., one of the largest and best equipped mines in the country.

Named as Institute Officers

The Nominating Committee of the American Institute of Mining and Metallurgical Engineers has presented the following names which will appear on the official ballots when they are circulated next January. Samuel A. Taylor, consulting coal-mining engineer, Pittsburgh, Pa., as stated in *Coal Age*, Oct. 22, leads the list as president. B. O. Mahaffy, Siberian Oil Co., St. Louis, Mo., and Carl A. Meissner, chairman, coke committee, U. S. Steel Corporation, New York City, are nominated as vice-presidents and directors. The other nominees for director are W. S. Hutchinson, S. W. Mudd, R. H. Sales, H. A. Guess and L. K. Armstrong.

Founder Societies Will Hold Safety Meet in New York

Plans are complete for a joint safety meeting of the American Institute of Electrical Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers with the American Society of Safety Engineers — Engineering Section of the National Safety Council. This will be held Nov. 18 in the auditorium of the Engineering Societies Building, 25 W. 39th St., New York City.

The subjects treated will be "Economic Aspects of Safety," "Organization and Its Work in Accident Prevention," "Engineering Standards and the Safety Movement," "Prone Pressure Method of Resuscitation" and "Standardization and Safety."

Two other subjects will be "Education in Schools and Colleges in the Solution of the Safety Problem," led by E. A. Holbrook, dean, School of Mines, Pennsylvania State College, State College, Pa., and "Safety in Mines," led by J. V. W. Reynders, president of the A.I.M.E., and discussed by B. F. Tillson, New Jersey Zinc Co., Franklin, N. J.

Extend Reading Coal Rights

The committee on securities of the New York Stock Echange announces that it has received information that the date of expiration of the right to subscribe of Reading Company stockholders to stock of the Philadelphia & Reading Coal & Iron Corporation has been extended from Dec. 31, 1925, to July 1, 1926.

N. & W. Fights C. & O. for Coal Business

A battle royal for supremacy in the rich coal fields of southern West Virginia is being waged by the Norfolk & Western and the Chesapeake & Ohio, a unit in the Van Sweringen Nickel Plate system. This became evident when the Guyandotte & Tug River R.R., a subsidiary of the Norfolk & Western, filed a petition on Oct. 31 with the Interstate Commerce Commission for permission to construct a road from Wharncliff, in Mingo County, to Elmore, in Wyoming County, a distance of fifty-three miles.

The petition of the Norfolk & Western was not a surprise in view of the fact that last April the Chesapeake & Ohio asked permission to build a road from Gilbert, in Logan County, the terminal of the present Guyan Valley division, to Mullens, in Wyoming County, and from that point to Stonecoal, in Wayne County, the terminus of the Winding Gulf division. With this extension the Chesapeake & Ohio would be able to bid for some of the tonnage now being handled by the Norfolk & Western, and such an extension would afford a much better eastern outlet.

The Norfolk & Western's proposed extension would tap a rich undeveloped coal area. This road already has a connection with the Virginian at Matoaka, but the proposed extension, it is stated, would provide a more desirable connection. The new road would join the Virginian at Matoaka but westbound shipments of coal could be taken from the Winding Gulf field on the Virginian to Elmore and then be moved from that point to Wharncliff, on the proposed line, where the coal would be turned over to the main line. It is asserted that such a routing would be of material assistance in overcoming transportation problems routing the coal by Matoaka. Operators also believe that by building such an extension the Norfolk & Western hopes to strengthen its case in connection with its application to acquire the Virginian.

That the Norfolk & Western Railway will eventually spend $6,000,000 in and around Williamson, W. Va., is indicated from plans to enlarge the railroad yards at that point to a capacity of 4,000 west-bound loads per day, and by negotiation for the entire property of the Leckie Colliery Co., across the river in Kentucky. The railroad desires the colliery company for the bottom land it controls, desiring to get away from the cramped conditions incidental to bringing coal out of Pond Creek territory, which is causing expensive congestion on the railroad bridge crossing Tug River. The Fordson Coal Co., on Pond Creek, is shipping twice as much tonnage as its predecessors and the Portsmouth By-Product Coke Co., at Freeburn, has increased its production. A number of mines in the Thacker field have gone far beyond any tonnages heretofore shipped. It is stated that the Norfolk & Western will be electrified from Williamson to the Tug River field, where electrification west-bound has been stopped.

Production, Imports, Exports and Home Consumption Of Anthracite and Bituminous Coal, 1913-1924

(In Net Tons)

Calendar Year	Production	Imports	Exports to Canada and Mexico	Exports to Other Countries (Seaborne)	Net Changes in Stocks[a]	Consumption in the United States[b]
Anthracite:						
1913	91,525,000	c 2,000	4,573,000	80,000	+ 1,400,000	85,474,000
1914	90,822,000	c 9,000	4,220,000	70,000	+ 2,500,000	84,041,000
1915	88,995,000	c 14,000	3,854,000	111,000	— 3,100,000	88,144,000
1916	87,578,000	6,000	4,558,000	108,000	— 4,200,000	87,118,000
1917	99,612,000	13,000	5,917,000	90,000	— 450,000	94,068,000
1918	98,826,000	37,000	4,910,000	58,000	+ 1,120,000	92,775,000
1919	88,092,000	83,000	4,871,000	106,000	+ 1,680,000	81,518,000
1920	89,598,000	32,000	4,987,000	417,000	— 1,560,000	85,786,000
1921	90,473,000	9,000	4,569,000	108,000	+ 3,855,000	81,950,000
1922	54,683,000	234,000	2,579,000	70,000	— 4,530,000	56,798,000
1923	93,339,000	300,000	4,993,000	97,000	+ 1,635,000	86,914,000
1924	87,927,000	118,000	3,932,000	86,000	+ 3,310,000	80,717,000
Bituminous:						
1913	478,436,000	1,583,000	15,650,000	4,495,000	d	459,874,000
1914	422,704,000	1,546,000	10,674,000	4,784,000	d	408,792,000
1915	442,624,000	1,709,000	9,670,000	9,107,000	d	425,556,000
1916	502,520,000	1,714,000	13,481,000	7,774,000	—11,000,000	493,979,000
1917	551,791,000	1,448,000	18,324,000	5,506,000	e	529,409,000
1918	579,386,000	1,457,000	18,316,000	4,034,000	+27,900,000	530,593,000
1919	465,860,000	1,012,000	12,064,000	8,050,000	—39,900,000	486,658,000
1920	568,667,000	1,245,000	16,458,000	22,059,000	+20,000,000	511,395,000
1921	415,922,000	1,258,000	13,590,000	9,541,000	+ 2,200,000	391,849,000
1922	422,268,000	5,060,000	10,938,000	1,475,000	—12,000,000	426,915,000
1923	564,565,000	1,882,000	16,960,000	4,494,000	+26,000,000	518,993,000
1924	483,687,000	417,000	12,746,000	4,354,000	—17,000,000	484,004,000

a For anthracite the figures are producers' stocks; for bituminous, consumers' stocks. The plus sign denotes coal produced but added to stocks and not consumed, while a minus sign denotes coal consumed that had been withdrawn from stocks carried over from the preceding year. Data on anthracite from cost reports of Federal Trade Commission (Coal, No. 2, p. 27), and hearings before Frelinghuysen Coal Committee, S. Res. 126, 66th Congress, First session (Part I, p. 308). These anthractie figures through 1918 represent coal years, since then calendar years, and are in part estimates. Data on bituminous coal from reports on consumers' stocks of bituminous coal, issued by U. S. Geological Survey, and article, "Is the Coal Shortage Real or Imaginary?" printed in *Coal Age*, Aug. 26, 1920 (p. 429), by C. E. Lesher, formerly coal statistician, U. S. Geological Survey, and director of statistical division, U. S. Fuel Administration.

b Production tonnage, plus imports and minus exports, plus or minus the decrease or increase, respectively, of the net change in coal stocks.

c Fiscal year ended June 30. *d* No data available. *e* No change.

Data on production, consumption and stocks largely from U. S. Geological Survey reports; import and export figures from records of Bureau of Foreign and Domestic Commerce; issued by U. S. Bureau of Mines

Monongah Mine to Run Open Shop in West Virginia Union Citadel; Two Companies Sign Baltimore Pact

The United Mine Workers of America received one of the worst setbacks in its industrial struggle in northern West Virginia when the Consolidation Coal Co. announced last week that it would operate mine No. 63, formerly known as No. 8, at Monongah, Marion County, at the 1917 scale. This formerly was the citadel of the union in the district. The Mine Workers retaliated by signing up two companies under the Baltimore agreement in Scotts Run.

Officials of the Consolidation Coal Co. announced during the latter part of last week that more than 60 men were cleaning up the big plant, which had been idle since April. Because of roof falls and other conditions several days would elapse, it was said, before coal was run at the mine. The mine normally employs about 300 men. Incidentally an effort will be made soon to operate the company's extensive beehive coke ovens at Monongah on full time.

Starting Monongah mine is interpreted a decisive step in view of the fact that the largest local union of the United Mine Workers is there. The miners' hall, one of the finest ever erected in any coal region, also is located there. It is the scene of all the union meetings and in it a co-operative motion picture theater is conducted.

Recently the Consolidation Coal Co. reopened O'Donnell mine, No. 57, in Fairmont, located on the Monongahela Ry. at the foot of Palatine Knob, and will be running coal there shortly also.

Union Signs Two Companies

The two companies which the union announced it had signed under the Baltimore agreement on Nov. 6 are the Tropf Coal Co., which started operation this week, employing 200 men in the Morgantown section of the field, and Satchell Bros., who, it is reported, have leased the By-Product Coal Co. mine in Scotts Run, and will work from 75 to 100 men beginning this week.

According to Patrick Buckley, president of the Monongah local union, "the members of local union No. 1,463 have leased the Hope mine at White Rock and are operating it for the purpose of supplying coal to all those who desire 100 per cent union mined coal." A short time ago the United Mine Workers negotiated for the operation of Josephine mine, in Scotts Run, which was opened on a union basis to furnish coal for members of the union who needed fuel.

The West Virginia Supreme Court of Appeals will hear the motion to dismiss the writ of error granted to Van A. Bittner, chief international representative of the United Mine Workers in northern West Virginia, in Charleston on Dec. 8. Bittner was sentenced for contempt of court by Judge I. Grant Lazelle, of the Monongalia County Circuit Court, in Morgantown, but was granted a writ of error.

It is reported that John S. Forinash, of Grafton, formerly president of Subdistrict No. 3, District No. 17, United Mine Workers, has been selected as commissioner to represent the Consolidation Coal Co. in labor matters. Some weeks ago W. M. Rowan, of Grafton, formerly vice-president of Subdistrict No. 3, was selected by the miners employed by the company to represent them.

Coal mines in the twelve and one-half counties of northern West Virginia produced 600,300 net tons in the week ended Oct. 31, which is the largest since the week ended Sept. 15, 1923. In the first four days of last week the non-union mines produced 6,859 carloads and union mines 1,027 carloads.

A new peak for non-union coal loading in the twelve and one-half counties of northern West Virginia was reached Nov. 6, when 1,883 cars of coal was produced, supplanting the former daily peak of Nov. 5, when 1,810 cars was produced by open shop mines.

It is announced that the Southern Pacific R.R. is considering going back to coal for steam on its Salt Lake City division. It was stated that no decision had been made yet regarding the date of the change, much depending on the trend of the oil market and the cost of installing stokers. It is said that the coal chutes will be modernized and that equipment to weigh the coal as it passes from the chute to the tender will be installed.

New Hoisting Record Set By New Orient Mine

A new world's record for coal production was set by the New Orient mine, at West Frankfort, Ill., on Nov. 4, when 11,325 tons was hoisted in an 8-hour shift. This mine formerly held the record with 10,313 tons. The number of miners employed totaled 1,050. The mine, which is known as the world's largest, is three years old and is owned by the Chicago, Wilmington & Franklin Coal Co. It employs the skip type hoist.

Young Succeeds Bedford

The American Section of the International Chamber of Commerce announces the appointment of Owen D. Young as chairman of the American Committee of the International Chamber, succeeding the late A. C. Bedford. Mr. Young has taken an active part in the affairs of the International Chamber even since it was organized at Paris four years ago. Since then he has served as one of the three American directors. He also served as a member of the Economic Restoration Committee of the Chamber, which recently made a world economic survey with a view to making the Dawes plan more fully effective. The survey was submitted to the meeting of the International Chamber meeting at Brussels last June, and steps are now being taken to put into operation the suggestions made by the committee looking to the stabilization of conditions in Europe.

Surveys by National Distribution Conference Point Ways to Eliminate Waste in Business

Waste in business will be the object of a concerted attack by business men at a general meeting of the National Distribution Conference to be held in Washington, Dec. 15 and 16, under the auspices of the Chamber of Commerce of the United States. The call for the meeting was issued Nov. 8.

More than two hundred manufacturers, wholesale and retail merchants, economists, editors, advertising experts and representatives of trade associations and organizations will weigh the methods by which transactions aggregating upward of $50,000,000,000 annually in the United States, as variously estimated, are carried on. They will attempt to point out the practices which are unethical and economically unsound, constituting major sources of waste, and outline methods by which they may be eliminated.

Six surveys, each covering an important aspect of distribution, have been undertaken by six special committees of representative character. The subjects with which they deal and their chairmen are: "Collection of Business Figures," Owen D. Young; "Trade Relations," A. Lincoln Filene, Boston; "Market Analysis, Advertising and Advertising Mediums," Stanley Resor, president of the J. Walter Thompson Co., New York; "Expenses of Doing Business," Robert R. Ellis, Hessig-Ellis Drug Co., Memphis, Tenn.; "Methods of Distribution," L. D. H. Weld, director of research, Swift & Co., Chicago; "General Conditions Affecting Distribution," G. S. Brown, president, Alpha Portland Cement Co., Easton, Pa.

The wide range of problems brought to light in these surveys will be submitted to the National Distribution Conference with a series of recommendations which will form the basis of discussion and will serve as a definite plan of campaign, national in scope, to be conducted by business for the elimination of waste in distribution.

Fitzmorris Is New President Of Globe Coal Co.

Charles C. Fitzmorris, secretary to Mayors Carter H. Harrison and Willian Hale Thompson, of Chicago, and chief of police during the later years of Mayor Thompson's régime, was elected president of the Globe Coal Co., Chicago, Oct. 29, succeeding George F. Getz.

Since he resigned as chief of police Mr. Fitzmorris has devoted himself to the coal business, starting April 17, 1923, as president of the Eureka Coal Co., a subsidiary of the Globe Coal Co.

Mr. Getz was elected chairman of the board of directors when stockholders of the company elected Mr. Fitzmorris president. Mr. Getz will leave on a trip to Europe aboard the "Belgenland," Nov. 25.

Coal and Oil Consumption by Public Utilities Increases

Public utility power plants in the United States consumed 3,423,845 net tons of coal in September, according to a report by the U. S. Geological Survey. This compares with 3,341,464 tons in August, as shown by revised figures. Fuel oil consumption by utilities in September totaled 845,528 barrels, compared with 759,622 barrels in July as shown by revised figures.

The average daily production of electricity by public-utility power plants in September was 179,500,000 kw.-hr., 3½ per cent larger than the average daily output for August.

The total output of electricity by public-utility power plants in the United States from January to September, inclusive, in 1925 was 47,570,000,000 kw.-hr., an increase of 10 per cent over the same period for 1924.

Workers' Wages Go Further Than at Peak Period

A broad and distinct tendency toward rising "real" wages, that is wages measured in terms of what the worker can buy with his earnings, is traced by the National Industrial Conference Board, New York, in a comparative study of representative industries.

Increased application of power, better utilization of labor, mechanical ingenuity and managerial efficiency, according to the Conference Board, are steadily tending to reduce unit cost of production, thereby cheapening the general cost of living, with resulting increasing prosperity for all.

While this tendency is not equally noticeable in all industries the differences in wage levels and cost of production are largely attributable to the different degree of efficiency of production prevailing in the respective industries, the Board points out in comparing conditions in major industrial branches.

The concrete result of this increased industrial efficiency, the Conference Board study declares, is reflected in the fact that while the American workman to day, if we measure the purchasing value of his earnings in terms of the same standard of living as prevailed in 1914 but discount the rise in retail prices, is 24 per cent better off than he was at the beginning of the war (in July 1914), and 5 per cent better off than he was at the peak of wage earnings during the inflation period of 1920.

Is Pinchot "Giant Power" Plan Fallacious?

The administrative board of the American Engineering Council, meeting at Columbus, Ohio, Oct. 29 and 30, authorized the appointment of a committee to review and analyze the "giant power" report issued by Governor Pinchot of Pennsylvania. The reviewing committee is to be chosen by the executive committee of the Council, to which it is to report at the earliest practicable moment.

The board's action, taken unanimously, followed representations that the "giant power" report contains economic fallacies likely to mislead the public. The aim of the analysis is to provide a popular interpretation of the report from an engineering standpoint.

Plans contemplating a nationwide study of public utilities were set in motion by the board, which voted to appoint a committee to determine a definite scheme of investigation and report to the Council at its annual meeting in Washington early in January.

Temporary Pay Raise Defers Belgian Coal Strike

The decision of the Belgian national mixed mines committee to grant the coal miners a 5 per cent increase in wages for the month of November postponed the strike scheduled to go into effect Nov. 2. Meanwhile, the mining situation will again be considered.

With the purpose of stimulating the market, the government has decided to purchase 50,000 tons of Belgian coal monthly for the railroads. This fuel heretofore has been furnished from German reparation shipments at an actual loss to the government. The coal stocks at present total 41,644,327 tons.

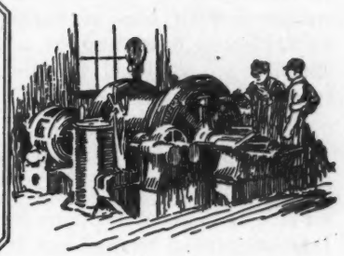
Chief Winners at International First-Aid and Mine-Rescue Meet

At the left is the Belleville, Ill., team of the Southern Coal, Coke & Mining Co., which made the highest average in both first-aid and mine-rescue tests at the international meet in Springfield, Ill. Its combined average score was 92.4, which gave it the congressional bronze medallion, the National Safety Council cup and other handsome trophies which are shown here in possession of the winners.

In the photograph are, back row, left to right: James Robertson, superintendent of the mine-rescue station at DuQuoin, Ill.; S. A. Butler, member of the team, but unable to compete because of a broken ankle; James Gatherum, of the American Rolling Mill Co., Zanesville, Ohio, formerly with the Illinois mine-rescue service; W. W. Hunter, superintendent of the Springfield station of the Illinois mine-rescue service. Front row, left to right: Wilbur Beese, "patient," James Dent, Vivian Stuart, Charles Stuart, John Green and David Stuart, captain.

At the right is the American Rolling Mill Co. team of Zanesville, Ohio, which won first place in the first-aid contest with a score of 99.04. This team also took the highest honors among all Ohio teams in its preliminaries. The men in the photograph are, back row, left to right: Curt Nagle, captain, James Gatherum, assistant to the supervisor of safety, and Fred McCoy. Front row, left to right: Malcolm Reed, Emmet Lowe, Ralph Frizzle and William Snyder.

Practical Pointers For Electrical And Mechanical Men



Home-Made Device Permits Turning Up Tires While on Locomotive

Some time ago, while in the employ of the Davidson Connellsville Coal & Coke Co., it became necessary for me to turn up the tires on a gasoline locomotive. This machine had been in daily service for two years, running on light rails and the tires had become so grooved as to cause trouble. This grooving extended to a depth of about ½ in., being so bad that the machine was knocking the frogs to pieces. It would have been highly inconvenient to send the wheels away to have them turned up and it also would have been quite a job to dismantle the drive gear which is upon the rear axle.

I accordingly got busy and devised the outfit shown in the accompanying illustration with which I removed the false flanges without taking the wheels from under the locomotive. I removed the brake shoes, side rods, rear sand boxes and took out the springs, allowing the journal boxes to go to the top of the frame. Next I removed the oil cellars and made boxings of hard wood lined with half of an old crown brass. The wood box used was of such length that when the pedestal plate was tightened up it held the axle firmly against the regular box without appreciable play. The whole machine was then blocked up from the rails at the ends, so that the wheels were free to turn clear.

The turning rig employed consisted of a steel strap 1 in. thick, 4½ in. wide and 4½ ft. long. This was fastened across the frame just ahead of the wheels with two ⅝ in. U-bolts. A tool carrier was placed on this bar made of the same thickness of iron as the bar itself, the guides being sawed and filed by hand to the proper size and shape. A tool post was next procured and two double-ended turning tools of self tempering steel.

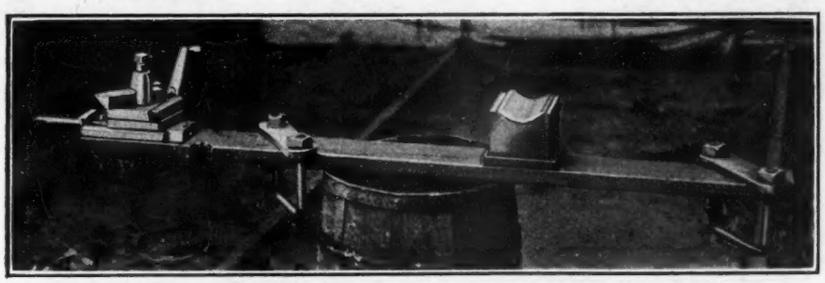
When the motor was started and operated in low gear the drivers had about the proper lineal speed at the rim for truing them up with the lathe tool. In this way, the false flanges were readily removed. Furthermore, when using this outfit it would have been possible at any stage of the truing-up operation to put the motor back into service within two hours time, regardless of whether the job was completed or not.

HEWS SHOES WITH HATCHET

After the false flanges had been cut away the brake shoes naturally did not fit the treads. As no new ones were available at the plant, I put these shoes in the fire brought them to a bright red heat and hewed them into shape with an ordinary hatchet. Many people are unaware of the fact that cast iron when brought to the proper temperature can be chopped away in this manner, but it can be done and apparently does not injure to any appreciable extent the hatchet used for this purpose.

CHARLES O'NEIL.

Point Marion, Pa.

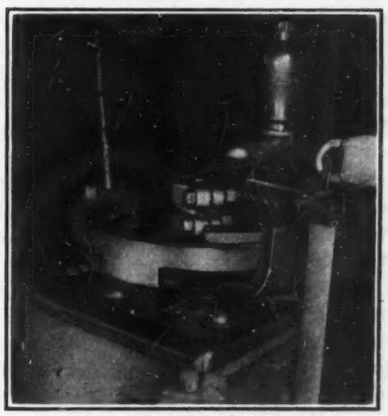


Simple Equipment for Turning Tire Treads

With this apparatus the tires may be trued up under the power of the locomotive and without removing the axles from their boxes.

Padlock Saves Power by Limiting Fan Speed

At a mine where the ventilating fan is equipped with a variable speed motor and control, and where it is not necessary to operate the motor at full speed, it often happens that someone who is not informed as to the proper operating point of the controller, starts the fan and leaves it operating at a speed much faster than necessary. It is not unusual for a superintendent or an engineer, showing a visitor through a mine, to move the controller of the fan back a notch or two and remark: "——— it! Every once in a while I find this fan running faster than necessary."



Prevents a Power Waste

A stop locked in position limits the travel of the controller handle and thereby the fan speed. This practically insures operation at the speed designated by the superintendent or engineer.

The fact that at most mines the fan load is practically unvarying 24 hr. a day and, therefore, is responsible for a material portion of the power bill, makes it highly important that the speed be held to a minimum. The accompanying illustration shows how this is done at the mines of the Fordson Coal Co. in Kentucky. A steel segment with a point fitting into a controller notch and locked in the desired position

forms a stop for the handle. A fan equipped with this arrangement is never found operating at a higher speed than assigned by the superintendent or engineer.

Why Did This Motor Heat?

A short time ago a motor in the service of the coal company by which I am employed burned out its bearings. When the armature "poled" the coils became overheated and "shot to ground." This particular machine is of a type that is equipped with waterproof windings that are difficult to repair, the heavy waterproofing requiring removal with a mallet and piece of fiber so sharpened as to form a scraper. The compound was removed, however, and the coils cut out.

In this type of machine the coils are not wound separately but in groups thus obviating stub connections. This, however, increases the difficulty of making repairs. In this case I opened the adjacent coils at the point of diamond or the knuckle and picked up the end that ran to the winding. Of course, this method cuts out some of the turns of a good coil but it is quick and entails less chance of damage through the attempt to find the short stub end near the slot.

The motor was then taken into the mine and connected to the pump that it drives. The mine mechanic reported that it was running very hot, that is, too hot to touch. It was accordingly sent back to the shop and a running test made, the temperature being taken with a thermometer. The motor was operated without load and at the end of 4 hr. registered a temperature of 98 deg. C. As the room temperature was 23 deg. C. the rise amounted to 75 deg. C.

Inasmuch as a class *A* insulation will successfully withstand a difference in room and coil temperature of 90 deg. C. the motor was in no particular danger unless it became appreciably hotter. It was accordingly reconnected to the pump, and after 3 hr. under load registered a temperature of 85 deg. C. The temperature of the mine was 18 deg. C. so that the rise in the temperature of the motor was 67 deg. C.

The question naturally arises why did this motor run hotter without load than when loaded? The reason for this doubtless lies in the fact that the electric shop is at the power plant where the voltage is maintained at approximately 10 per cent above normal to offset line losses and deliver a proper potential at the mine. This motor was wound for 550 volts and operation on a higher potential would probably cause it to heat at the shop more rapidly than within the mine. Eddy currents within the machine are more numerous at high than at low voltages. Their heating effect is consequently greater.

Another reason for the higher temperature attained in the shop as compared to that in the mine was the lower temperature and greater volume of the mine air. In other words, the mine air was in better condition to absorb heat from the motor than was the air in the shop. Then again, the electric conductivity of any metal decreases as its temperature rises so that the conductors of the comparatively cool motor in the mine could carry a bigger current than those of the shop motor.

This action of the motor, as well as that of the mechanic who condemned it, shows the need of having a thermometer available to every man who has charge of motors in any mine. It is impossible to determine with the hand alone whether or not a machine is running too hot. This is because any motor that heats to its allowable 40 or 50 deg. C. rating is too hot to touch comfortably. Furthermore, while the hand is extremely sensitive to even slight differences in temperature it is decidedly inaccurate in locating them on any thermometer scale.

GRADY M. EMERSON,
Alabama Fuel & Iron Co.
Acmar, Ala.

Clamp and Gage Assist in Retaping Fields

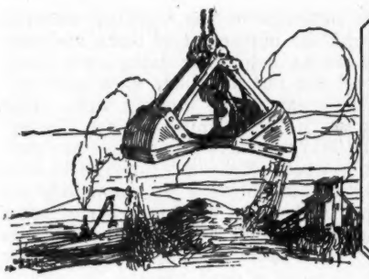
Clearance must necessarily be small between the pole piece and the inside of a field coil, especially on a machine such as a mine locomotive where there is severe vibration and where space is at a premium. Most mine electricians have experienced the trouble of trying to install a field coil in which the hole is just a bit too small to go over the pole piece. This is not an uncommon occurrence with field coils that have been retaped.

In order to be certain that retaped coils will fit properly in the motor, Bob White, foreman of the winding shop of the Island Creek Coal Co., of Holden, W. Va., uses a gage on each finished coil. This gage consists of a piece of sheet fibre fitted with a metal handle. The corners of the fibre are shaped to correspond with the motor pole piece, but the sides are cut away so that the gage can more easily be tried inside of the coil.

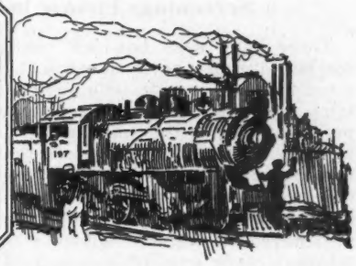
Another device of interest used in retaping field coils is the bench clamp, which can be seen in the accompanying illustration holding a coil in a convenient position. This clamp is nothing more than a Z-shaped iron with slotted holes in the base by which it is fastened with thumb screws to the bench. Two tapered wooden blocks are inserted between the coil and the top of the clamp. While being taped, a heavy field coil is held securely, with any desired overhang beyond the edge of the bench.

Test Gage and Bench Clamp Aid Repairman

Heavy field coils are awkward things to hold while being taped. The photograph shows a coil held in a convenient position, overhanging the bench, by a simple adjustable clamp and two wooden wedges. After the taping is done, the gage, which is lying on the coil at the left, is tried inside to insure proper fitting on the motor pole piece.



Production And the Market



Heavy Soft-Coal Output Well Absorbed In Firm Market; Coke Slumps

The growing strength lately in evidence in low-volatile bituminous coal, due to the prolonged suspension of anthracite mining, is now spreading to high-volatile grades. The pick-up continues to be most strongly marked in the prepared sizes, though even mine-run is beginning to improve a little. Screenings also are moving better in Midwest markets and prices have advanced a little. Steam grades are going stronger, full quotas being taken on contracts in most instances.

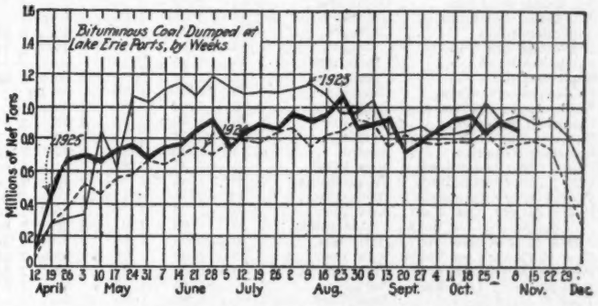
Steady demand for West Virginia smokeless in the East has caused that to be a scarce article in the Middle West, with the result that Illinois, Indiana, eastern and western Kentucky and even Ohio coals are in much more brisk demand and at better prices. In fact, some mines in the eastern Ohio field that have been closed for a year or more are preparing to reopen. Central Pennsylvania coals have been in good demand from Eastern markets and car loadings have been mounting steadily in that field. A sudden slump in demand for egg at Pittsburgh, however, has caused a sharp drop in prices.

New England is an exception in the reports of brisk trade in Atlantic coast markets. Business has been rather colorless with only casual inquiry and prices less firm.

Heavy production, increasing demand and the movement of coal in unaccustomed directions are beginning to bring about a disarrangement of traffic facilities and rolling stock on the railroads that perhaps was inevitable. While car shortages and slower movement are as yet largely local affairs, the likelihood of a spread of such conditions is an eventuality unpleasant to contemplate. Traffic is still heavy through the Cincinnati gateway, 14,975 cars having passed through last week, 2,873 bound for the lakes.

Little anthracite of any size is to be had in the wholesale market. Stocks of pea will soon be exhausted and retail supplies of the larger sizes are dwindling. A sudden let-up in the demand for coke as a hard-coal substitute has brought about a reaction in price, consumers showing a tendency to turn to mine-run soft coal, due to the rapid advance in the prices of prepared coal and coke.

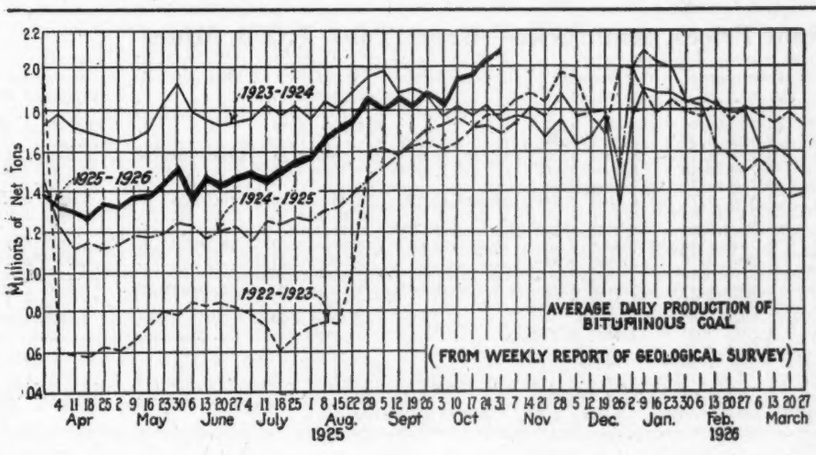
Output of bituminous coal during the week ended Oct. 31 is estimated by the Bureau of Mines at 12,475,000 net tons, the highest weekly output since last January. This compares with 12,088,000 tons produced



in the preceding week. Anthracite output in the week ended Oct. 31 totaled 18,000 tons, an increase of 5,000 tons over the week before.

Coal Age Index of spot prices of bituminous coal on Nov. 9 stood at 185, the corresponding price being $2.24, compared with 181 and $2.19 on Nov. 2.

Dumpings at Lake Erie ports during the week ended Nov. 8, according to the Ore & Coal Exchange, were: Cargo, 795,715 net tons; steamship fuel, 47,098 tons—a total of 842,813 net tons, compared with 919,425 tons in the preceding week. Hampton Roads dumpings in the week ended Nov. 5 totaled 398,123 net tons, against 405,873 tons in the previous week.



Estimates of Production

(Net Tons)

	1924	1925
BITUMINOUS		
Oct. 17	10,599,000	11,770,000
Oct. 24 (a)	10,645,000	12,088,000
Oct. 31 (b)	10,405,000	12,475,000
Daily average	1,734,000	2,079,000
Cal. yr. to date	(c) 392,194,000	419,368,000
Daily av. to date	1,525,000	1,628,000
ANTHRACITE		
Oct. 17	1,750,000	17,000
Oct. 24	1,927,000	13,000
Oct. 31	1,444,000	18,000
Cal. yr. to date	(c) 75,654,000	61,741,000
COKE		
Oct. 24 (a)	140,000	224,000
Oct. 31 (b)	150,000	261,000
Cal. yr. to date	(c) 8,083,000	8,194,000

(a) Revised since last report. (b) Subject to revision. (c) Minus two days' production to equalize number of days in the two years.

Screenings Firmer in Middle West

There have been but few changes in the Midwest coal market during the past week. Illinois operators do not seem to have any trouble in getting sufficient orders for lump coal, but still have considerable difficulty in moving prepared coal in the smaller sizes. The screenings market is bringing much better prices than for several weeks. In the Indiana field the better grades are pretty well sold up, except the smaller prepared coals. No No. 4 Indiana screenings are available. Mines producing No. 5 Indiana coal still have considerable difficulty in moving prepared sizes, whereas there is a brisk demand for screenings, which are rather scarce. Western Kentucky prices have advanced to a new high level. Some companies have raised the price on lump to $2.50, whereas only a month ago it sold at $1.85.

West Virginia and eastern Kentucky prices have been advancing right along with hardly any coal available. Coals from eastern Kentucky and good West Virginia splint are now bringing $3.50 in this territory and west of here, and a number of dealers with little coal in their bins are willing to pay almost any price to get car numbers within forty-eight hours.

The few cars of New River and Pocahontas coal that can be had in Chicago at present are held by jobbers for a premium. Business is rather dull on these coals, except where the dealer is forced to pay the price in order to satisfy some of his trade.

Seasonable weather is evidence of the working time of southern Illinois mines and the movement of lump and egg. Most mines are several weeks behind on lump shipments, egg is about even, but all the nut sizes are slow with the exception of No. 2, which seems to be moving well. This represents the condition at the shaft mines in the Carterville field and also in the Harrisburg field. Mines are getting four and five days a week. Railroad tonnage is running light and car shortage is showing up on nearly all roads. The movement of loads from the mine is not what it should be, everything considered, and indicates serious trouble and delayed movement later when the weather gets bad. Strip mines seem to have a good market for everything and some of them are even crushing the smaller sizes. In the Duquoin field there is some improvement but no railroad tonnage. Prices in all these fields remain unchanged.

In the Mt. Olive district the improvement perhaps is greater than in any other field in the state. Mines are working practically full time and railroad tonnage is good. Domestic tonnage is unusually good with a market that seems to take care of all the steam sizes. There has been an increase in the price of this coal for shipment to the country from $2.75 to $3. St. Louis prices advanced from $2.50 to $2.75 on domestic sizes. In the Standard field there isn't any change in conditions. It is a hand-to-mouth game with a little more working time perhaps this week than heretofore, but prices are about at cost of production and nearly all mines have "no bills" of the smaller sizes

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern	Market Quoted	Nov. 10 1924	Oct. 26 1925	Nov. 2 1925	Nov. 9 1925†
Smokeless lump	Columbus	$4.35	$4.85	$4.85	**$5.00@$5.50**
Smokeless mine run	Columbus	2.05	2.50	2.35	2.25@ 2.50
Smokeless screenings	Columbus	1.35	2.05	2.05	2.00@ 2.15
Smokeless lump	Chicago	4.60	5.75	5.75	**6.00@ 6.50**
Smokeless mine run	Chicago	1.85	2.25	2.25	**2.25@ 2.75**
Smokeless lump	Cincinnati	3.85	6.00	6.25	*5.00@ 6.00*
Smokeless mine run	Cincinnati	1.90	2.50	2.35	**2.50@ 2.60**
Smokeless screenings	Cincinnati	1.15	2.00	1.95	**2.00**
*Smokeless mine run	Boston	4.30	4.60	4.95	*4.90@ 5.00*
Clearfield mine run	Boston	1.95	1.90	2.05	**1.85@ 2.35**
Cambria mine run	Boston	2.40	2.25	2.35	**2.10@ 2.75**
Somerset mine run	Boston	2.15	2.00	2.15	**1.90@ 2.50**
Pool 1 (Navy Standard)	New York	2.75	2.85	2.85	2.75@ 3.00
Pool 1 (Navy Standard)	Philadelphia	2.70	2.65	2.65	**2.80@ 3.10**
Pool 1 (Navy Standard)	Baltimore	2.30	2.15	2.15	2.10@ 2.20
Pool 9 (Super. Low Vol.)	New York	2.10	2.20	2.20	**2.15@ 2.35**
Pool 9 (Super. Low Vol.)	Philadelphia	2.15	1.95	1.95	**2.20@ 2.45**
Pool 9 (Super. Low Vol.)	Baltimore	1.70	1.95	1.95	1.90@ 2.00
Pool 10 (H.Gr.Low Vol.)	New York	1.85	2.00	1.95	**1.85@ 2.15**
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.75	1.85	1.85	**2.00@ 2.15**
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.55	1.80	1.80	1.80@ 1.85
Pool 11 (Low Vol.)	New York	1.60	1.80	1.80	*1.60@ 1.75*
Pool 11 (Low Vol.)	Philadelphia	1.45	1.70	1.70	**1.85@ 2.00**
Pool 11 (Low Vol.)	Baltimore	1.45	1.55	1.55	1.50@ 1.60
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.50	1.55	1.55	1.50@ 1.65
Pool 54-64 (Gas and St.)	Philadelphia	1.50	1.60	1.60	**1.55@ 1.70**
Pool 54-64 (Gas and St.)	Baltimore	1.45	1.55	1.55	1.55@ 1.60
Pittsburgh sc'd gas	Pittsburgh	2.40	2.75	2.85	2.75@ 3.00
Pittsburgh gas mine run	Pittsburgh	2.10	2.30	2.35	2.25@ 2.50
Pittsburgh mine run (St.)	Pittsburgh	1.85	2.15	2.20	*2.15@ 2.25*
Pittsburgh slack (Gas)	Pittsburgh	1.15	1.40	1.30	1.25@ 1.35
Kanawha lump	Columbus	2.55	2.60	2.60	2.45@ 2.80
Kanawha mine run	Columbus	1.55	1.70	1.70	1.55@ 1.85
Kanawha screenings	Columbus	1.00	1.30	1.30	*1.15@ 1.25*
W. Va. lump	Cincinnati	2.60	2.75	2.75	**3.00@ 3.50**
W. Va. gas mine run	Cincinnati	1.45	1.60	1.60	**1.65@ 2.00**
W. Va. steam mine run	Cincinnati	1.30	1.55	1.55	**1.50@ 1.75**
W. Va. screenings	Cincinnati	.95	1.15	1.25	**1.25@ 1.50**
Hocking lump	Columbus	2.55	2.70	2.70	**2.50@ 3.00**
Hocking mine run	Columbus	1.60	1.65	1.65	1.50@ 1.85
Hocking screenings	Columbus	.75	1.30	1.30	*1.15@ 1.25*
Pitts. No. 8 lump	Cleveland	2.30	2.45	2.55	2.10@ 3.00
Pitts. No. 8 mine run	Cleveland	1.75	1.95	1.95	*1.85@ 1.95*
Pitts. No. 8 screenings	Cleveland	1.00	1.35	1.45	*1.35@ 1.50*

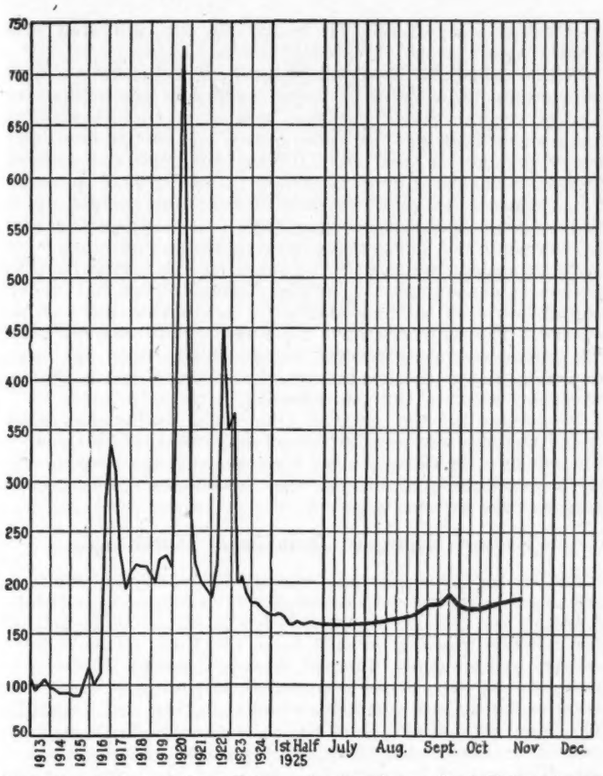
Midwest	Market Quoted	Nov. 10 1924	Oct. 26 1925	Nov. 2 1925	Nov. 9 1925†
Franklin, Ill. lump	Chicago	$3.35	$3.25	$3.25	$3.25
Franklin, Ill. mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Franklin, Ill. screenings	Chicago	1.35	1.60	1.60	1.50@ 1.75
Central, Ill. lump	Chicago	2.85	2.85	2.85	2.75@ 3.00
Central, Ill. mine run	Chicago	2.20	2.20	2.20	2.15@ 2.25
Central, Ill. screenings	Chicago	1.25	1.55	1.55	1.35@ 1.75
Ind. 4th Vein lump	Chicago	3.10	3.10	3.10	3.00@ 3.25
Ind. 4th Vein mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Ind. 4th Vein screenings	Chicago	1.45	1.60	1.60	**1.75@ 1.90**
Ind. 5th Vein lump	Chicago	2.85	2.35	2.35	2.25@ 2.50
Ind. 5th Vein mine run	Chicago	2.10	1.95	1.95	1.85@ 2.10
Ind. 5th Vein screenings	Chicago	1.10	1.40	1.40	1.35@ 1.50
Mt. Olive lump	St. Louis	3.00	2.50	2.50	**2.75@ 3.00**
Mt. Olive mine run	St. Louis	2.35	2.00	2.00	2.00
Mt. Olive screenings	St. Louis	1.10	1.75	1.75	1.75
Standard lump	St. Louis	2.75	2.25	2.25	2.25
Standard mine run	St. Louis	1.95	1.80	1.80	1.75@ 1.90
Standard screenings	St. Louis	.60	1.15	1.15	1.15
West Ky. block	Louisville	3.05	2.00	2.05	**2.00@ 2.25**
West Ky. mine run	Louisville	1.60	1.35	1.35	1.20@ 1.50
West Ky. screenings	Louisville	.70	1.05	.90	*.65@ 1.00*
West Ky. block	Chicago	2.75	2.05	2.05	**2.25@ 2.50**
West Ky. mine run	Chicago	1.65	1.25	1.25	1.15@ 1.35
South and Southwest					
Big Seam lump	Birmingham	3.10	2.25	2.25	$2.00@ 2.50
Big Seam mine run	Birmingham	1.70	1.80	1.75	1.50@ 2.00
Big Seam (washed)	Birmingham	1.85	1.85	1.85	1.75@ 2.00
S. E. Ky. block	Chicago	2.85	3.00	3.00	**3.25@ 3.50**
S. E. Ky. mine run	Chicago	1.60	1.95	1.95	1.85@ 2.10
S. E. Ky. block	Louisville	3.25	2.75	3.10	**3.25@ 3.75**
S. E. Ky. mine run	Louisville	1.60	1.50	1.50	**1.50@ 1.75**
S. E. Ky. screenings	Louisville	.90	1.25	1.20	**1.25@ 1.50**
S. E. Ky. block	Cincinnati	2.60	3.25	3.25	**3.25@ 3.50**
S. E. Ky. mine run	Cincinnati	1.45	1.60	1.60	**1.50@ 2.00**
S. E. Ky. screenings	Cincinnati	1.00	1.20	1.25	**1.25@ 1.50**
Kansas lump	Kansas City	5.00	4.60	4.85	**5.00**
Kansas mine run	Kansas City	3.35	3.00	3.10	**3.25**
Kansas screenings	Kansas City	2.00	2.30	2.30	2.25@ 2.35

* Gross tons, f.o.b. vessel, Hampton Roads.
† Advances over previous week shown in heavy type; declines in *italics*.

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

	Market Quoted	Freight Rates	November 10, 1924 Independent	November 10, 1924 Company	November 2, 1925 Independent	November 2, 1925 Company	November 9, 1925† Independent	November 9, 1925† Company
Broken	New York	$2.34	.....	$8.00@$9.25	.....	$8.20@$8.95	.....	$8.20@$8.95
Broken	Philadelphia	2.39	.....	9.15	.....	.....	.....	.....
Egg	New York	2.34	$8.75@$9.50	8.75@ 9.25	.....	8.65@ 8.90	.....	8.65@ 8.90
Egg	Philadelphia	2.39	9.45@ 9.75	8.80@ 9.25	.....	.....	.....	.....
Egg	Chicago*	5.06	8.17@ 8.25	8.14@ 8.20	$9.50@10.00	8.03@ 8.28	$9.50@$10.00	8.03@ 8.25
Stove	New York	2.34	9.75@10.50	8.75@ 9.50	.....	9.15@ 9.40	.....	9.15@ 9.40
Stove	Philadelphia	2.39	10.10@10.75	9.15@ 9.50	.....	.....	.....	.....
Stove	Chicago*	5.06	8.63@ 8.75	8.50@ 8.64	10.00@11.00	8.48@ 8.80	10.00@11.00	8.48@ 8.80
Chestnut	New York	2.34	9.75@10.00	8.75@ 9.25	.....	8.65@ 8.95	.....	8.65@ 8.95
Chestnut	Philadelphia	2.39	9.75@10.50	9.15@ 9.25	.....	.....	.....	.....
Chestnut	Chicago*	5.06	8.26@ 8.40	8.44@ 8.60	10.00@11.00	8.50@ 8.75	10.00@11.00	8.50@ 8.75
Pea	New York	2.22	5.00@ 5.50	5.50@ 6.00	.....	5.00@ 6.25	.....	5.00@ 6.25
Pea	Philadelphia	2.14	5.75@ 6.00	6.00	.....	5.00@ 6.25	.....	.....
Pea	Chicago*	4.79	5.13@ 5.45	5.36@ 6.20	5.50@ 6.00	5.50@ 6.00	5.50@ 6.00	5.50@ 6.00
Buckwheat No. 1	New York	2.22	2.00@ 2.50	3.00@ 3.15	.....	2.50@ 2.75	.....	2.50@ 2.75
Buckwheat No 1	Philadelphia	2.14	2.50@ 3.00	3.00	.....	2.50@ 3.00	.....	2.50@ 3.00
Rice	New York	2.22	1.75@ 2.25	2.00@ 2.25	.....	2.25	.....	2.25
Rice	Philadelphia	2.14	2.00@ 2.25	2.25	.....	2.25	.....	.....
Barley	New York	2.22	1.25@ 1.50	1.50	.....	2.25	.....	2.25
Barley	Philadelphia	2.14	1.50	1.50	.....	1.50	.....	.....
Birdseye	New York	2.22	1.35@ 1.60	1.60	.....	.....	.....	.....

*Net tons, f.o.b. mines. †Advances over previous week shown in heavy type; declines in *italics*.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	1925			1924
	Nov. 9	Nov. 2	Oct. 26	Nov. 10
Index	185	181	178	170
Weighted average price...	$2.24	$2.19	$2.15	$2.06

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and, second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke; 1913-1918," published by the Geological Survey and the War Industries Board.

on hand which they are unable to move. Railroad tonnage is reported light and buyers usually fix their own prices. Car shortage shows up slightly in this field.

Domestic movement of coal is fairly good to St. Louis, everything seeming to move from Carterville down to Mt. Olive and even Standard—on account of the weather. Apartment house storage is understood to be pretty well in and also school storage. There is an increased demand for coke noticeable locally, but anthracite and smokeless are slow. Public buying is in smaller quantities this year than heretofore. Country demand is fairly good for middle grade coals and the movement of west Kentucky in St. Louis proper is gradually increasing. Country dealers also are taking readily to the west Kentucky product. Country steam is quiet and local carload is fairly active while local wagonload steam is unusually good. Prices are unchanged.

There is a heavy movement of coke from the St. Louis market to as far east as Buffalo, Toronto and intermediate territory. The movement averages seventy-five cars a day from the St. Louis switching limits, some going to Chicago.

Demand Taxes Kentucky Railroads

Cold weather, along with the Eastern situation and slow deliveries of fuel from the mines, has brought about keener demand and advancing prices in Kentucky. Domestic and steam call are both picking up. Mines are having car troubles in both eastern and western Kentucky. Some of the eastern Kentucky mines report that there is no actual shortage of empties, but that the roads can't move the heavy traffic. Some mines lost two or three days last week on account of traffic conditions.

The general market on best eastern Kentucky block is $3@$3.50 for the bulk of the movement, with better grades at $3.75@$4. Fancy specialty coals are being quoted as high as $4.50 and it is reported that the price is being paid. Lump and egg are around $2.50@$3; nut, $2.50@$2.75; mine-run, $1.50@$1.75, and screenings are higher, at $1.25 @$1.40.

In Western Kentucky 6-in. block is $2@$2.35; lump and egg, $1.90@$2.10; nut, $1.35@$1.50; mine-run, $1.20@$1.50, and screenings, 65c.@90c., the west Kentucky screenings market being lower due to large production and free offerings.

Activity Unabated in Northwest

No letup is noticeable in shipments from Duluth and Superior docks. Buying by industrial companies has been even stronger during the last ten days, iron mining companies on the Minnesota ranges are buying more steam coal than in some time and retailers have been coming in with re-orders.

Demand for Pocahontas and other smokeless bituminous coals as substitutes for anthracite continue to be an outstanding feature. Dealers have fair supplies of Pocahontas. Its market is persistently stiffening, an advance of 50c. in prepared sizes having been announced this week, making the figure $9. Mine-run and screenings are unchanged at $5.50 and $4.25 respectively. While supplies of Pocahontas screenings are accumulating on the docks, the trade is generally sanguine that they will all be needed for special purposes before the season ends.

Anthracite on the docks will be practically exhausted within two months. An advance of 15c. on nut and 50c. on pea was announced this week, making the line-up as follows on docks: Egg, $13.20; stove, $13.60; nut, $13.60; pea, $11.50, and buckwheat, $6.50. Pea and buckwheat have both been in demand lately to mix with coke as an anthracite substitute. Domestic coke is unchanged at $8.50 and briquets are unchanged at $9.

Thirty cargoes via the lakes were unloaded at the docks and seventeen cargoes were reported en route. Bituminous stocks on the docks here total 3,400,000 tons, of which around 2,000,000 belong to the railroads.

Milwaukee dock managers report hard coal virtually out of the market and the better grades of soft coal looking up because of the enormous demand upon the mines. Consumers who can use soft coal are calling for that fuel, and those who cannot burn soft coal are turning to coke. The better grades of bituminous coal have advanced $1.50 in Milwaukee, with a prospect of still higher figures. The little anthracite in some hands is retailing at $18.55 for stove, $18 for chestnut, $16 for pea and $11.75 for buckwheat, with 75c. deducted when fuel is not carried to the bins. Pocahontas egg and lump sell for $14.50, range size for $9.50 and mine-run for $8, with 75c. added for carrying to bins. No hard coal has been received by cargo in Milwaukee since Sept. 15. The receipts for the season up to Nov. 6 total 3,161,701 tons—488,234 tons of anthracite and 2,673,467 tons of bituminous coal.

Orders Keep Southwest Operators Hustling

While the Southwestern market this year is immediately responsive to changes in temperature, orders have piled up in such quantity during recent cold snaps that mines would be assured of full working time for at least two weeks if the demand should cease entirely. Operators are, for the most part, two weeks behind with deliveries of Kansas lump and from two days to a week on nut. Even screenings have been affected by the brisk demand. All surpluses have been cleaned up in the field and some operators are two or three days short. The result of the general activity has been more firmly to establish the price of $5 for Kansas shaft lump and to steady screenings quotations around $2.35, although some are to be had at $2.25. Kansas shovel lump is bringing $4.50@$4.75, with quotations for other shovel grades the same as those for shaft.

In Colorado there has been a splendid demand for domestic lump and nut and steam sizes of coal for the past week, the mines working full time and some of them on double shift. Some operators are booked up for the entire month of November. All mines are operating without any interruption by transportation and labor.

As a result of the increased demands prices were advanced 50c. per ton Nov. 1. Walsenburg-Canon City lump coal is $6; washed nut, $5; washed chestnut, $3; Trinidad 6-in. coking coal for domestic and steam uses, $4.25; 3-in., $4; nut, $3.50; Crested Butte high-grade anthracite Nos. 1 and 2 (furnace size), $7.25; Nos. 3 and 5 (baseburner size),

$7.75; Horace Nos. 1 and 2 (furnace size), $9; Nos. 3 and 5 (baseburner size), $9.

Working time in the Utah coal fields is improving as a result of the first signs of winter. Dealers report rush orders. The demand for coal for heating purposes is on a serious scale for the first time this season. There is plenty of coal in dealers' yards and the car situation is generally good, so there is not likely to be a coal shortage, regardless of the weather. Demand for slack is much better again. Nut and stove are moving less freely than other sizes, but no size could be said to be a drug on the market at this time. The demand for Utah coal outside of the state is said to be about normal for the season. The price situation is unchanged and there is an abundance of labor.

Trade Generally Firm at Cincinnati

Car shortage in an aggravated form and a flood of buying orders did the expected to the high-volatile market at Cincinnati this week. The basis on block, 4-in. and 6-in. lump rose to $3.25 with the market closing strong. Taking two to three days a week in production away from the southeastern Kentucky market seems to have been the thing that started prices to run away. Cold weather also must be reckoned in.

Egg and 2-in kept pace, with $2.75 as the low and $3 asked for the better grades. Some specialized coals from the Elkhorn and Hazard districts went as high as $3.25@$3.50. Mine-run was a little slow in getting started, but by Saturday $2 asked was not infrequently heard for the better types, especially gas coals and malleables. Some stuff still could be had around $1.50@$1.65 for steam purposes, but this was getting scarce and was eagerly picked up. Screenings and slack were sought with the rise and sales at $1.40@$1.50 were reported, though the general spread was closer to $1.25@$1.50.

Movement to the lakes continues heavy, though the end of the season is approaching; 2,873 cars moved lakeward last week, a decrease of 251 cars. In all, 14,975 cars passed through the Cincinnati gateway.

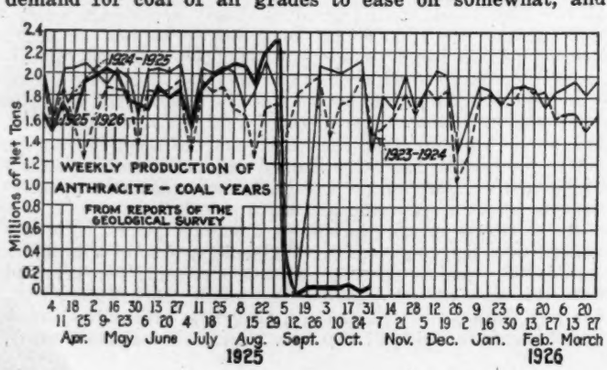
In the smokeless market an effort is being made to get prices in better alignment. Inland dealers are raising a rumpus and it has been difficult to get them interested in $6 coal. They'd rather take high volatiles. Trading on a $5 basis is much better. The East is still taking $6 egg and nut, but sales are slackening some. In fact some companies made their price $5.50@$6 for later deliveries rather than touch any of the spot business at the top. Mine-run stiffened some, $2.50@$2.60 being the price named. Screenings were solid at $2.

Columbus is slowly digesting the price advances of Nov. 1 and consequently buying is not quite so active, although the market continues firm as to domestic sizes. Retail prices have been advanced in sympathy with higher prices at the mines. Some car shortage is reported. There is practically no free coal on the market as far as domestic sizes is concerned and thus no cheap cargoes to be picked up.

Steam business is still rather spotty and quiet. Buying by large users is for current needs mostly, although some show a tendency to stock up. Screenings are slightly weaker, owing to a larger production of lump and prepared grades. Considerable mine-run is now going into the lake trade and that has been one of the best features.

Production in the southern Ohio field has shown little increase. While some mines are being placed in shape for operation only a few have started to run coal.

More moderate temperatures in eastern Ohio, have caused demand for coal of all grades to ease off somewhat, and spot prices are softer by 5c. to 10c. per ton compared with a week ago.



With immediate needs of domestic consumers at least temporarily taken care of, retail orders at the mines are not so strong. However, local quotations on Pocahontas lump are still $6 per ton f.o.b. mines, due to the unusually heavy demand in the East. West Virginia and eastern Kentucky domestic lump is quoted at $3.25@$3.50 per ton, f.o.b. mines. As retailers have been unable to get quick deliveries on Southern grades, Ohio mines preparing coal for domestic use have had a heavier demand of late.

Steam orders are mostly for small lots as compared with previous seasons, as the larger consumers are not at all apprehensive as to their ability to continue to get coal as needed. The railroads have been taking full commitments on contracts and shipments to the lakes trade has been unusually heavy for the late season. The market is readily absorbing most of the coal offered.

Production in the eastern Ohio field during the week ended Oct. 24 was the largest of any week of the year—313,000 tons, or about 45 per cent of capacity. During the week ended Oct. 31 output was 309,000 tons, the second largest thus far this year.

Eastern Demand Relaxes at Pittsburgh

While there is a fair run of industrial and railroad buying of coal and heavier buying of domestic coal in tributary territory the feature of the Pittsburgh district coal market for a while was the demand from the East. The Eastern call for egg suddenly slumped, however, and as sellers have lately been reserved, on account of advancing prices, there were promptly heavy offerings and the price broke sharply. It is now impossible to obtain more than $3.25 from Eastern buyers for shaker screen egg coal, the best prepared of all. The market had been $4.50@$5 and $5.25 was obtained on a few sales. The reaction is attributed to heavier offerings of West Virginia smokeless. Slack is weak but has not receded beyond the decline of a week ago.

The bituminous trade proper at Buffalo is as dull as ever. The regular trade does not want slack and it is more or less indifferent to anything else. Prices cannot be said to have gone off, for they probably will hold till the substitute fuel is out of the market, but there is enough smokeless and screened lump going into cellars to create an interest in the entire trade, especially as prices are a dollar or two up.

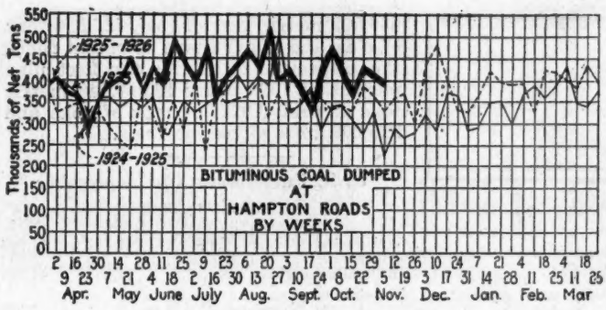
New England Market Lacks Color

A colorless market has ruled in New England in the past week. For mine-run steam coal there has been only casual inquiry, and prices are now hardly as firm as when last reported. Larger accumulations are in evidence both at Hampton Roads piers and on rehandling wharves at this end. There is so much complaint of slack in cargoes that come forward that retail dealers have little comfort in relying on any considerable proportion of lumps to offer as substitutes for anthracite. As between Welsh anthracite, coke and screened bituminous dealers are feeling their way and making purchases of pea and buckwheat wherever possible.

High-grade smokeless coals f.o.b. vessels at Newport News and Norfolk are held at prices seesawing around $4.90@$5, with only light tonnages being placed on the spot market. Slack is again a drug on the market, and new low figures have been made quietly to move accumulations. The lucrative prices now being realized for lump, egg and nut have tended to increase the available supply of slack.

Quotations on cars Boston and Providence are within easy range of $6 per gross ton. Spasmodic efforts have been made to advance the figure to $6.50, but conditions now do not warrant any such level. At retail in Boston the delivered price of steam coal is now $8, while $12 is being asked for lump for domestic use.

The Pocahontas and New River interests are active in trying to place prepared sizes in this market, although for the present, owing to rate differentials, they are restricting their efforts to areas reached by the N. Y., N. H. & H. On Nov. 6 the smokeless operators held a conference in Boston with representatives of the New England Governors' committee and set on foot plans for systematic merchandising of screened bituminous. The trade itself, however, which in all these negotiations has been very little con-



sulted, continues to show a marked preference for Welsh anthracite, English ovoids and even Scotch coke. And even of these substitutes the dealers thus far have bought only sparingly.

All-rail from Pennsylvania there is any quantity of good coal that can be bought at $2.25@$2.50 per net ton, f.o.b. mines, but continuing low prices on Pocahontas and New River from tidewater points give the latter the preference.

New York Trade Firm but Not Spectacular

Bituminous prices at New York are fairly steady, advancing only in spots. Failure to show a more buoyant tone is not due to lack of buying, which is brisk, but to the fact that supply has fully kept pace with requirements except for special grades of coal.

Domestic screened coal is holding firm at the prices prevailing for the past few weeks. The point seems to have been reached where buyers prefer mine-run rather than bid higher for the limited amount of prepared coal that is available.

Central Pennsylvania operators who are equipped to ship egg and stove sizes are selling them for $6.50@$8 a ton, the Broad Top coals commanding the maximum figure. Screened lump is bringing $4.50@$5.50. High-volatile egg and stove sizes command around $4.50@$5, with some producers quoting as high as $5.50.

There has been a decided improvement in the Philadelphia market, the improved demand for coal being due to the anthracite suspension. As yet the usual consumer of soft coal, however, seems a bit indifferent. Customers with contracts are taking their regular allotments. Prices generally have moved upward and probably will continue to do so, as the demand for coal from the former anthracite market shows no signs of abatement.

The soft-coal market at Baltimore is a rather mixed affair. Industrial demand is no more brisk than it has been for several weeks past and the price of run-of-mine coals continue on the same basis that has applied for at least three weeks. Prepared sizes, however, are in active demand at $5.50@$7.50 per ton as a result of the hard coal strike. There has been a pronounced slump in the export coal trade from Baltimore.

Cool, crisp weather is having a favorable effect on the domestic trade at Birmingham. Orders are coming in to retailers in sufficient numbers to keep them fairly busy, and more liberal shipments are being taken on contracts by dealers. Spot demand is good and the volume of business being booked is sufficient, with contract commitments, to move current output without any worth-while delay. Demand for the better grades is the more pronounced, and most of the business placed is for immediate shipment.

The market for commercial coal is very active and the demand for the better grades is sometimes in excess of the supply immediately available, and this condition is serving to lend more strength to the demand for medium and lower qualities. Reports indicate, however, that fuel users are not yet giving consideration to stocking. Movement of bunker coal during the past week or so has been much heavier than for some time past.

Quotations on steam and domestic fuel are stable, with an inclination toward higher levels for the better qualities of washed and mine-run product.

The coke market continues brisk with quotations $6@$6.50 for spot foundry grades, $4.25 and $4.50 for nut and egg sizes, respectively, and $4.25@$4.50 for gas coke.

Complaints of car shortage have been heard throughout the district, but the situation has not assumed a serious aspect as yet.

Anthracite Users Less Keen on Substitutes

At New York the supply for some kinds of anthracite substitutes has caught up with the demand, at least for the present. This is particularly true of coke, where a slight price reaction has taken place. Screened bituminous is holding its own, but is no longer advancing. Buying seems to be turning more to mine-run, owing to coke and prepared coals having gone up too rapidly.

Most retail dealers have made initial purchases of one of these fuels, and because of fairly good sales have in many instances sent in repeat orders. This has occurred more in the metropolitan area than in the small towns, where substitutes do not sell as readily because most house owners have their winter fuel in their cellars and retail stocks of hard coals have been sufficient to take care of the hand-to-mouth buyers.

If the anthracite strike lasts much longer the public will have to take to substitutes to a greater extent, but just now there is a general tendency not to buy anything in that line until it is absolutely necessary.

No company coal of any size can be obtained by the average buyer. The companies still have some buckwheat in their stocking plants, but it is believed to be covered by contracts and orders. Speculative buckwheat is offered in New York harbor at $8 to $8.50 alongside, and a few cargoes of pea are said to be available at around $17.

The Philadelphia market is fast reaching the point where little anthracite of any size is to be had. A few company shippers continue to ship lightly of pea coal, but the report is that all stocks will surely be exhausted by Dec. 1. Retail yards are almost cleaned out of large sizes, a few retaining a small tonnage to meet special cases. Stocks of buckwheat held by the company producers are diminishing rapidly, all companies having reached the point where they are no longer open for additional orders for this size.

Dealers, having decided that there will not be enough coke or sized bituminous coal to go around for hard-coal substitutes, are ordering low-volatile bituminous.

There is practically no hard-coal situation in Baltimore other than a scarcity of anthracite in yards. Outside of a few having limited supplies, which they are releasing in one and two ton lots to customers they consider in the most need, dealers are advising customers to seek substitutes for hard coal.

At Buffalo the small sizes of anthracite are running short. Pea has about given out and buckwheat is anything but plentiful. Probably the member of the trade who makes the most money in the trade is the coke producer. All the available ovens are active and new ones are being got ready as fast as possible. The curb price of furnace coke is now about $15 a ton and some dealers are asking more.

Slump Hits Connellsville Coke Market

Continued light demand from the East for Connellsville coke, both run of oven and broken, came suddenly to a climax with a fall in prices. Sales were made Saturday at $6.50@$7 for run of oven. Some say broken is hardly any better, others say $8@$9 is obtainable. The main influence seems to be congestion in the East, with several railroad embargoes on both coal and coke, there being 1,400 cars of coke at Perth Amboy and 1,000 at the Reading pier, as well as much coal.

Sudden changes are likely, from the character of the market. With a lull in buying coke soon started to accumulate. The operators can expect no storage favors from the railroads, particularly when loaded cars are blocked in the East, as demurrage charges would be clapped on instantly, so the coke has to be sold.

Foundry coke has not actually made a new market since the slump in furnace coke, but may be appraised at $8@$8.50.

Car Loadings, Surplusages and Shortages

	Cars Loaded	
	All Cars	Coal Cars
Week ended Oct. 24, 1925	1,121,459	189,006
Previous week	1,106,114	186,389
Week ended Oct. 25, 1924	1,113,053	194,404

	Surplus Cars		Car Shortage	
	All Cars	Coal Cars		
Oct. 22, 1925	122,597	48,533	.....	.....
Oct. 14, 1925	130,797	52,942	.....	.....
Oct. 22, 1924	94,153	46,476	.....	.....

Foreign Market And Export News

British Coal Market Advances Gradually; Inquiry Developing

In the South Wales steam coal trade conditions do not show much further progress. Shipments are expanding, but lack of ready steamers has contributed to limit activity. Dry steam coals have improved to some extent by taking the surplus business that would normally have gone to the anthracite market. This is particularly the case in regard to sized coals of the dry class, which constitute an excellent substitute for anthracite for stove purposes.

New business in ordinary steam coals, especially in the case of Monmouthshires, has been developing slowly. Work in the district has been exceedingly irregular, and it has been decided to serve notices on the men employed at several additional collieries.

Improvement continues at Newcastle-on-Tyne, where the coal market position is strong. There have been heavy bookings of all classes of coal for shipment and supplies are now getting scarce, only comparatively small lots being obtainable. Inquiry for next month also is good, but the tendency for the moment is to hold off in view of the long loading turns. Inquiries are circulating, too, for delivery to the end of the year and to March, but though merchants are offering to sell freely ahead they are not disposed to discount present prices and forward transactions are understood to have been closed on these terms. A strong tone has developed in the coke trade. Gas coke is firm and higher.

Production by British collieries during the week ended Oct. 24, according to a special cable to *Coal Age*, totaled 4,820,000 gross tons, compared with 4,715,000 tons in the preceding week.

Gains Counterbalance Losses At Hampton Roads

Activity at Hampton Roads last week was without feature, the market apparently holding its own, with increases in business in some angles offsetting slight depressions in others. Foreign business appeared to be holding its own, but coastwise trade was barely up to normal.

Domestic business was on the increase with the advent of cold weather and bunker trade was at a normal level. The tone of the market was fairly strong and the situation was described as steady. The production of coal in some southwest Virginia mines was reported as on the increase, in anticipation of better winter business.

At the request of a small group of coal shippers, who assert that information being released by the coal piers has given their competitors in this port, as well as coal shippers in other ports, too great an "inside track" on the coal market here, the piers have discontinued issuing the regular reports on the coal situation.

French Industrial Coal Demand Equal to Supply

In the French coal market supply and demand for industrial coals are more or less equal, which, on the whole, is rather satisfactory. This is explained in part by increased activity in the metallurgical, textile and glass industries and by the protection given to French coals by the rise in sterling.

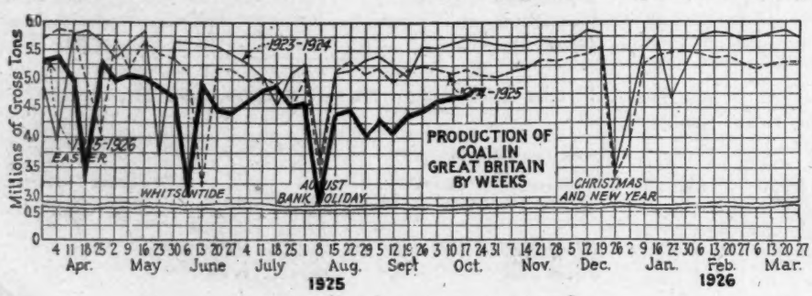
In domestic coals, merchants are grumbling about the delay in shipments—as much by French and Belgian producers as by British anthracite exporters. Considering the heavy weather, the demand has been rather weak during October.

Two additional shiploads of Russian anthracite are on their way to Rouen.

Receipts of indemnity fuels from the Ruhr during the first ten days of October included 110,200 tons of coal, 77,800 tons of coke and 9,400 of lignite briquets. These figures do not include free contracts imputed to the reparations account.

During the first twenty days of October the O. R. C. A. received from the Ruhr 145,571 tons of coke. The German government consented to a reduction of 1.50 m. in the official price of coke, which made the price 22.50 m. beginning Oct. 15.

Exports of French fuels in September included 480,144 metric tons of coal, 51,610 tons of coke and 10,690 tons of patent fuels, the totals for the first nine months of 1925 being, respectively, 3,265,955 metric tons of coal, 321,142 tons of coke and 92,411 tons of patent fuels. Imports in September were 1,636,322 metric tons of coal, 420,394 tons of coke and 147,994 tons of patent fuels, the respective totals for the first nine months of 1925 being 13,207,148 metric tons of coal, 3,827,584 tons of coke and 925,609 tons of patent fuels.



U. S. Fuel Imports in September

(In Gross Tons)

	1924	1925
Anthracite	7,777	11,984
Bituminous shale and lignite	750	6,033
Bituminous coal and slack	14,492	41,229
Imported from:		
United Kingdom	.....	1,500
Canada	14,492	43,545
Australia	750	.....
Other countries	.....	2,217
Coke	3,511	10,719

Export Clearances, Week Ended Nov. 7, 1925

FROM HAMPTON ROADS

	Tons
For Canada:	
Ital. Str. Color, for Three Rivers	6,110
Nor. Str. Frey, for Montreal	3,971
Ital. Str. San Pietro, for Montreal	7,507
Dan. Str. Paris, for Montreal	4,187
For West Africa:	
Ital. Str. Delia, for Dakar	8,053
For French West Indies:	
Nor. Str. Thomas Krag, for Fort de France	4,885
For Italy:	
Ital. Str. Aster, for Port Ferrajo	8,834
Ital. Str. Monginevro, for Naples	3,526
For Cuba:	
Br. Str. Pentraeth, for Havana	3,930
Br. Str. Glenpark, for Sagua la Grande	1,979
Nor. Str. Gefion, for Havana	2,958
For Chile:	
Br. Str. Ellaston, for Tocopilla	975
For Porto Rico:	
Amer. Schr. Charles H. MacDowell, for Manauba	1,905

FROM BALTIMORE

For Cuba:	
Am. Schr. T. N. Barnsdall, for Hamacao	1,500
Am. Schr. Major Wheeler, for Guanica (coke)	330

Hampton Roads Coal Dumpings*

	Oct. 29	Nov. 5
N. & W. Piers, Lamberts Pt.:		
Tons dumped for week	131,603	100,502
Virginian Piers, Sewalls Pt.:		
Tons dumped for week	84,312	97,583
C. & O. Piers, Newport News:		
Tons dumped for week	146,472	157,382

* Data on cars on hand, tons on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS

	Oct. 31	Nov. 7*
Pool 1, New York	$5.50@$5.75	**$5.75@$6.00**
Pool 9, New York	5.00@ 5.25	*5.00@ 5.20*
Pool 10, New York	4.75@ 5.00	*4.65@ 4.85*
Pool 11, New York	4.50@ 4.70	4.55@ 4.65
Pool 9, Philadelphia	4.85@ 5.05	**5.05@ 5.30**
Pool 10, Philadelphia	4.55@ 4.75	**4.80@ 5.10**
Pool 11, Philadelphia	4.35@ 4.55	**4.50@ 4.75**
Pool 1, Hamp. Roads	5.00@ 5.25	*4.85@ 5.00*
Pool 2, Hamp. Roads	4.75@ 5.00	*4.60@ 4.70*
Pools 5-6-7, Hamp. Rds.	4.60@ 4.75	*4.50*

BUNKERS

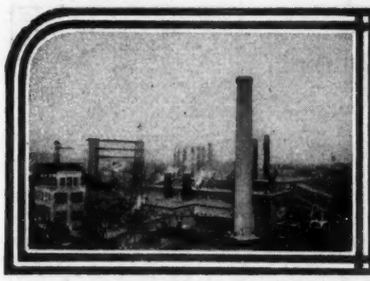
Pool 1, New York	$5.75@$6.00	**$5.00@$5.25**
Pool 9, New York	5.25@ 5.50	*5.25@ 5.45*
Pool 10, New York	5.00@ 5.25	*4.90@ 5.10*
Pool 11, New York	4.75@ 4.95	4.80@ 4.90
Pool 9, Philadelphia	5.05@ 5.25	**5.30@ 5.55**
Pool 10, Philadelphia	4.75@ 4.85	**5.10@ 5.35**
Pool 11, Philadelphia	4.60@ 4.75	**4.75@ 5.00**
Pool 1, Hamp. Roads	5.00@ 5.25	*5.00*
Pool 2, Hamp. Roads	4.75@ 5.00	*4.70*
Pools 5-6-7, Hamp. Rds.	4.60@ 4.75	*4.50*

Current Quotations British Coal f.o.b. Port, Gross Tons

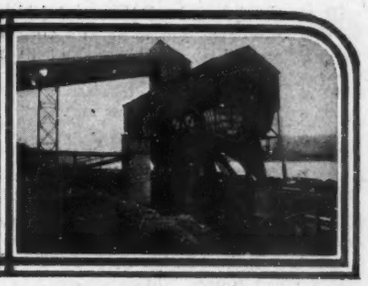
Quotations by Cable to *Coal Age*

Cardiff:	Oct. 31	Nov. 7*
Admiralty, large	23s.@23s.9d.	*23s.@23s.6d.*
Steam smalls	10s.3d.	**10s.6d.**
Newcastle:		
Best steams	15s.6d.	**15s.9d.**
Best gas	16s.6d.	**16s.3d.@18s.9d.**
Best bunkers	14s.6d.@15s.6d.	**15s.@16s.6d.**

*Advances over previous week shown in **heavy type**; declines in *italics*.



News Items From Field and Trade



ALABAMA

The stockholders of the DeBardeleben Coal Corporation have approved a new financing plan adopted by the board of directors of the corporation providing for the issuance of $1,500,000 in bonds, which it is understood is to provide for refinancing and also betterments and improvements to be made in the future. The corporation is now enjoying a splendid business, all of its large and well-equipped mines operating on a full-time basis. Henry T. DeBardeleben is president of the company. The general offices are at Birmingham.

Joseph A. Norman has withdrawn from the firm of Adams, Rowe & Norman, wholesale coal and coke sales agency, with which he has been associated since its organization in 1919. Mr. Norman is well known in the trade, having been connected with the operating firm of Bonnyman-Norman Coal Co. for a number of years prior to the organization of the firm from which he is now withdrawing and is thoroughly acquainted with both the selling and operating phases of the industry. Mr. Norman has not announced his plans for the future.

The St. Louis & San Francisco R.R. has placed an order with the Fairfield car shops of the Tennessee Coal, Iron & Railroad Co. for 500 gondola cars, which are to be delivered during the early part of next year. The Frisco is one of the largest coal-carrying lines in the district and mines on its lines are now operating practically full time.

A number of idle Alabama mines are preparing to resume operation at an early date. The Alabama By-Products Corporation has reopened its No. 15 drift opening, near Dora, and it is understood that the Sloss-Sheffield Steel & Iron Co. is cleaning up its Ivy mine, which has been idle for about three months, and will resume mining there as early as practicable. The new Crockard Mine No. 5, being developed on a large scale by the Woodward Iron Co., is expected to begin production in a small way during the first quarter of 1926. This is a shaft opening and will provide facilities for the removal of several hundred thousand tons of Pratt coal in a virgin field.

The Alabama By-Products Corporation is modernizing its mines at Flat Creek and Praco, these operations being electrified and mining machines being installed at the latter point. Wegra mines also have been electrified fully and a new electric hoist has been installed at this operation recently. It also is understood that a large coal bin will be constructed there. A new washery has been built at Blossburg and also one at Mineral Springs.

ARKANSAS

With 28 men in its employ the New Coronado Coal Co., the only coal mining concern operating at Huntington, is running full time six days a week. The 1924 scale of wages is being paid. The management expects to continue operations throughout the winter.

H. D. Covius, M. H. Covius and Sturius Covius, all from La Salle, Ind., and V. Rube and E. T. Barnes have been inspecting the Dixie Girl Mine, which is situated between Buffalo and Rush, with a view to buying it.

COLORADO

A shortage of approximately three hundred miners exists in the Fremont, Las Animas and Huerfano County coal fields, according to an estimate by E. H. Weitzel, general manager of the Colorado Fuel & Iron Co., at Pueblo. Unofficial report is to the effect that a similar condition exists at the mines of the Victor-American company. Diversion of labor to the beet fields and the sugar factories is believed by officials to be largely responsible.

The statement of the Colorado Fuel & Iron Co. for the quarter ended Sept. 30 shows gross receipts of $6,141,769, compared with $7,492,540 in the corresponding quarter of 1924. Operating expenses of $5,442,089, compared with $6,840,267 in the 1924 quarter. Income above fixed charges was $70,847, against $17,413 the year before, which left a deficit of $186,334, against $239,768 after $257,181 had been deducted for depreciation.

ILLINOIS

The Jeffery mine, Herrin, operated by Pratt Brothers, established a new hoisting record Oct. 12, when 2,966 tons of coal was hoisted in eight hours without any prior preparations or accumulations of coal to speed up the day's work. The mine hoisted 1,085 pit cars. One year ago the Jeffery mine set a record of 2,866 tons in eight hours by hoisting 1,055 pit cars.

Secretary James Mason of the Belleville subdistrict of the Illinois United Mine Workers has received a check for $6,067.28 from Receiver J. Kapp of Chicago, who was named by the federal court in St. Louis as receiver of the Missouri-Illinois Coal Co. and People's Coal Co., both of which went into bankruptcy in September, 1923. The check is for wages of 194 miners employed by the mining companies.

Rice Miller, Hillsboro, has been elected president of the Illinois Coal Operators Association.

Mine No. 7 of the Consolidated Coal Co., at Herrin, resumed full time operations late in October. This mine had been running at half capacity for several months.

Charles L. Dering, of Chicago, formerly president of the American Wholesale Coal Association, was made an honorary member of the Chicago Association of Commerce by unanimous recommendation of the executive committee at a meeting of the board of directors on Oct. 15. He retired from active business during the past year.

The Weaver mine of the Old Ben Coal Corporation, near Herrin, has resumed operation. Five hundred men had been idle since it closed down in February.

KANSAS

The question of moving headquarters of District 14, United Mine Workers, from Pittsburgh will be submitted by referendum to the locals of the district some time in November. Arma has volunteered to boost its offer of $10,000 toward the erection of a building for the district offices to $15,000, and already is said to have received pledges of more than $9,000 of the amount. Frontenac's offer is to remodel an existing building there and permit the district officers to occupy it without rent.

Drill tests near Cherokee to locate a vein of coal adapted to shovel operation are being made. Two or three shovels are expected to be employed in the development of the vein when its bounds are determined. The vein is from 18 to 26 in. thick and is from 16 to 22 ft. from the surface. The Western Coal & Mining Co. is among those interested in the tests.

Employees of the Home Riverside Mining Co., who have been idle since May, were notified last week that unless a new wage agreement is reached within sixty days the mine would be closed permanently and the property abandoned. The company employees have been receiving a wage of $7.50 a day. The company wishes to reduce this to $5, declaring the mine product cannot be sold in competition with other coals if the higher rate is paid. Should the mine not be reopened, such action

will mark the end of the coal industry in Leavenworth, where at one time four mines were in operation employing twelve hundred miners.

KENTUCKY

The O'Neal brothers, (J. T. and Emmett O'Neal), interested in the Emmett O'Neal Coal Co., Louisville, were much in the limelight over the past few days. Judge J. T. O'Neal with forty-eight hours' notice stepped in and ran on the Democratic ticket for Mayor of Louisville, when W. T. Baker, the regular candidate stepped out of the picture, having withdrawn when publicity was given to his former connection with the Ku Klux Klan. His brother Emmett O'Neal was running for sheriff on the same ticket. In spite of the sudden change in candidates, the O'Neal brothers were defeated by less than 3,000 votes, and by a machine which has been in control of local politics for ten years or more. The boys are quite popular, former athletes, and well connected socially. They made a much better race than had been generally predicted.

The Old Hickory Mining Co. expects to rebuild its old mine at Hite installing new mine cars, fans, electric substations, and electric machinery.

Parker & Tillinghurst, Cincinnati engineers, are reported to be drawing plans for the construction of a $100,000 plant for the Process Fuel Co. at Sixth and Davis Sts., Louisville. Emmett O'Neal Coal Co., Emmett O'Neal, Robert C. Logan, W. O. Alben, O. Marting, Dayton, Ohio, John G. Hettinger, of the Kentucky Fluorspar Co., and W. G. Eaton, of Cincinnati, are interested in the concern.

The Kentucky Public Utilities Co., Louisville, one of the Insull Companies, through vice-president L. B. Herrington, has announced the purchase of the Paducah Electric Co., including light and power, street railway and water gas plant holdings. The Kentucky company controls many miles of high-tension transmission lines in both eastern and western Kentucky, supplies current to many towns and coal plants. It recently purchased the 5,000-hp. power plant of the W. G. Duncan Coal Co., at Greenville, which it had previously had under lease, and also has the St. Bernard Mining Co.'s 5,000-hp. steam plant under lease.

Patrick E. Crowley, of New York, president of the New York Central Lines, and a group of company officials paid a visit to Louisville last week in connection with plans for the construction of a new Ohio River bridge at Louisville. The present bridge, completed in 1893, is too light to handle heavy coal trains and big engines, causing some traffic that should go through Louisville to be routed through Cincinnati.

It is reported that the Carr's Fork Coal Co., at Carr's Fork, in eastern Kentucky is planning to increase production capacity to forty cars from twenty-five. A new store building, sixty new miners' homes, additional mine openings, enlargement of the tipple, and other improvements are planned. It also is reported that the Hardy Burlingham Mining Co., in the Hazard field, is installing equipment for larger production, and is completing 100 new miners' homes.

A Dispensary at a Southern Mine

This particular dispensary is located at the Edgewater Mine of the Tennessee Coal, Iron & R.R. Co., in Alabama. Like most of the other mine buildings at this plant it is of neat brick construction. More and more, as time goes on, employers are coming to realize that it is good business to care well for the physical needs of their employees.

The holdings of the New Bell Jellico Coal Co. were sold at the Pineville Court House door Nov. 2 for $35,800. The total indebtedness of the company will reach about $339,000 and in addition to this there was sold about $350,000 worth of capital stock in the concern. The property was bought at the sale by R. E. Adams, Louisville, Miss Golden Day, Natural Bridge, and J. H. Adams, of Louisville, who held a mortgage on the property. The New Bell Jellico Coal Co. was organized about fifteen years ago. W. Mac Johnson, formerly of Lexington, but now reported a resident of Florida, operated the mine until it was placed in the hands of receivers a short time ago.

E. W. and Bert Dozier, of Madisonville, have bought 752 acres of coal rights near Madisonville at a reported price of $190,000 and will develop it with five slope mines. Development is to begin at once. The mines will be on the Madisonville line of the Illinois Central R.R. Daily output of each mine will be from ten to twenty cars daily. Following the deal the Dozier brothers announced that they had formed the Kentucky Royalty Co. with $20,000 capital stock, the organization being under the Kentucky laws.

K. U. Maguire, of the Harlan Coal Co., Louisville, has been elected vice-president of the new Morris Plan Industrial Bank, Louisville, of which he was one of the incorporators and developers. The bank is now getting ready to operate.

MARYLAND

Mines in the vicinity of Midland are increasing their output and new men are being taken on daily. The Eagen-Loar Coal Co. has started to ship coal after making extensive improvements. Carpenters are building new mine cars to increase the tonnage.

MINNESOTA

The ordinance for licensing retail fuel dealers has finally passed the Minneapolis City Council. It provides for a $50 annual license fee. There was some opposition on the ground that it would put small dealers out of business, but it was supported by the majority in the hope that it would assure responsibility of those in the business.

MISSOURI

The Old Ben Coal Corporation of Delaware, with a capital of $22,000,000, has asked permission to do business in St. Louis with a capital of $463,760. The company will do a general mining business. The incorporators are Vice-President Gordon Buchanan, and Secretary A. H. Flanigan.

NORTH DAKOTA

The North Dakota lignite mines shipped 83,397 tons between Sept. 12 and Oct. 3, as against 62,834 tons for the same period of 1924. But the interstate shipments were only 3,841 tons against 10,424 tons for the same time of last year.

The coal tipple and power plant of the Knife River Coal Mining Co., Beulah, was destroyed by fire in October, entailing a loss of about $100,000.

OHIO

The Columbus Retail Coal Merchants' Credit Association, composed of representatives from 38 retail coal concerns in Columbus, has been formed for the purpose of gathering and distributing credit information among its members. The organization was effected after several preliminary meetings when R. H. Bell, of the Bell Coal Co., was chosen president.

After being idle for about eight months, Mine No. 1 of the Ohio Collieries Co., located at Jacksonville, has resumed operations, giving employment to almost 200 miners. A portion of the output is taken in a large railroad contract.

Announcement has been made that the Beaumont Mine, located near Chauncey, will soon resume operations, employing about 150 men. There is considerable activity in the mines in and around Chauncey and about 1,000 men are working rather steadily.

Officials of the Pittsburgh Coal Co. announce that wages paid at the mines operating under the 1917 wage scale in the Pomeroy Bend field for the month of October totaled more than $66,000. There are three mines in that field operating on practically full time.

The M. A. Hanna Co. reports net income of $223,237 for the September quarter, against a deficit of $101,880 reported in the same period last year. For the first nine months of 1925 the company reported a deficit of $292,290.

Dumpings at the Toledo docks of the Hocking Valley Ry. for the two weeks ending Nov. 4 totaled 8,577 cars, or 496,744 tons, which is considerably in excess of the records for the same period of 1924 when 7,020 cars having a tonnage of 389,395 were dumped. Up to Nov. 4 the docks handled 103,276 cars, or 7,429,776 tons, as compared with 108,575 cars and 5,945,869 tons during the same period in 1924.

Dumpings of the New York Central Docks at Toledo for the two weeks ending Nov. 4 were 3,388 cars, or 167,487 tons, as compared with 333 cars and 16,269 tons for the corresponding period in 1924. For the season up to Nov. 4 the dumpings were 47,646 cars, or 2,347,678 tons, as compared with 1,701 cars and 83,715 tons for the same period last season.

OKLAHOMA

A windy shot was responsible for a blast which on Oct. 30 snuffed out the lives of Victor Morgan, of McAlester, and John Hunter, of Brewer, shotfirers of mine No. 4, at Brewer, the property of the Southern Fuel Co. The bodies of the miners were badly mangled, as the explosion had thrown them against the sides of the entry with enough force to break many bones.

PENNSYLVANIA

A coal washery owned by Allison & Eddy, of New York, and located about two miles south of Tamaqua, was destroyed by fire of undetermined origin early on the morning of Oct. 28, causing a loss of $20,000. When in operation the output of the plant was disposed of to surrounding localities.

Miners in the employ of the Buffalo & Susquehanna Coal & Coke Co. in their No. 2 shaft, at Du Bois, went on strike on Oct. 23. The strike arose over a controversy relative to evictions. This company was evicting miners living in company houses at Sagamore, where the mines are being operated on the 1917 scale. The B. & S. company has made no announcement concerning its future policy with the miners.

The Benjamin washery at Eynon, know as the Rhonda, was completely destroyed by fire at 8 p.m. Oct. 28, entailing a loss of about $25,000. The washery was built by Frank P. Benjamin, of Scranton, on the site of the old Raymond breaker, which was destroyed by fire several years ago. It had not been in operation for several months.

Harry F. Sinclair, of New York, filed a petition in federal court in Pittsburgh asking removal of W. M. Wilshire and C. G. McGregor, temporary receivers of the Carnegie Coal Co., appointed by the court recently. Sinclair alleges that fraudulent transactions involving $5,000,000 in first and second mortgage bonds took place in connection with the merger of the coal company with several other coal concerns, and further says that the receivers are friendly to the president and treasurer of the company, and so would not institute legal action to regain the $5,000,000 mortgage bonds which are alleged to be unlawfully held. Sinclair's immediate interest is based on a note for $125,000 on which he was co-indorser with John A. Bell and the Carnegie Coal Co. A rule was made returnable by the judge November 12.

The twelfth annual banquet of mine officials and miners in the Pittsburgh district, sponsored by John L. Pratt, state mine inspector, was held in Pittsburgh, Nov. 7. W. H. Pratt, former state legislator, was toastmaster. A. C. Fieldner, superintendent Pittsburgh station, U. S. Bureau of Mines; J. E. Struble, mine inspector, H. C. Frick Coke Co., and George F. Ossler, vice-president and general manager of the Pittsburgh Terminal Coal Co., spoke.

The Red Ash Coal Co., of Wilkes-Barre, one of the oldest in the anthracite field, has filed papers in the Luzerne County Court asking that it be dissolved. There will be a hearing on the petition on Nov. 23. The operations of the company, which was incorporated in 1874, have been located for the most part in Wilkes-Barre township. The firm's coal, on the mountainside of Wilkes-Barre, is being consumed by a mine fire that has been raging for several years. The company has spent thousands of dollars in an effort to conquer the flames, but little progress has been made.

The Evans Coal Mining Co. of Fairmont, W. Va., incorporated at $25,000 recently, has leased Rosedale mine No. 2 at Poland, Greene County, which contains 700 acres of Sewickley coal land, 38 miners' houses and a large wooden tipple equipped to turn out prepared sizes. The output will be increased from 15 to 20 cars within a short time, it is announced.

The Hillman Coal & Coke Co. has bought 20 all-steel barges for the river coal trade from the Jones & Laughlin Steel Corporation. The purchase involves 3,000 tons of steel and is considered a big purchase in the industry.

The giant electric pump at the bottom of the slope in the Reliance mine, at Mount Carmel, has been undergoing extensive repairs since the anthracite suspension went into effect. Thirty men have been employed on the job. This pump, one of the largest in the coal fields, has been in steady use for several years.

The Pittsburgh Coal Co. has purchased from Katherine V. H. Wylie, three tracts of land in Elizabeth Township, Allegheny County, for $36,800.

TENNESSEE

Howell J. Davis, of Knoxville, a coal operator, has become acting City Manager of the city, to serve during the absence of Louis Brownlow, City Manager, who has gone to Baltimore to undergo an operation. Mr. Davis acted as City Manager two years ago, immediately after the present form of government was adopted. He will serve as a dollar a year man while looking

A Section of the Coal-Company-Owned Town of Omar, Logan County, W. Va.

This is one of the model mining towns of the state. It was founded by the Main Island Creek Coal Co., which was taken over by the Hutchinson Island Creek Coal Corp., which in turn was consolidated with the West Virginia Coal & Coke Co. The mines at Omar are involved in a $250,000 lawsuit which the Coal & Crane estate brought against the original operators, charging improper mining methods.

after the municipal government and handle his coal business as well.

UTAH

"Burning of coal in large cities is nothing less than an economic folly and a social crime," said Col. H. D. Savage, vice-president of the Combustion Engineering Corp., New York City, in a talk before a meeting of Utah engineers in Salt Lake City last week. The speaker said that processes for the treating of coal had advanced to a state where gases that go off when raw coal is burned may be saved. In this way the value of each ton of coal is doubled whilst at the same time the city in which it is used is saved much trouble and expense from smoke. The speaker advocated "low-temperature distillation."

VIRGINIA

Dudley H. R. Wigg, of the General Coal Co., Norfolk, has taken an extended leave of absence on account of illness and is under treatment at Catawba Sanitarium.

WASHINGTON

The newest and biggest mine of the Pacific Coast Coal Co., on the Cedar River highway, five miles southeast of Renton, was opened late in October. The mine is expected to yield 2,000 tons of coal daily when it is placed in full operation. This will make it the largest mine in the state. Two tunnels were driven into Cedar Mountain during the past two years. One, from above the highway, goes straight into the mountain for about a half mile. The other comes slanting down from the top of the mountain and meets the main tunnel in the middle. From this meeting place a tunnel leads into the mountain, along the Jones seam. It is from this tunnel that the main operations will be conducted.

WEST VIRGINIA

In addition to resuming operations at its Coalton mine on Oct. 15, the West Virginia Coal & Coke Co., through E. L. Michie, general manager of its West Virginia division, announces that preparations are being made to put all the coke ovens of the company in blast, including those at Harding, as well as at Coalton, and that as soon as working forces can be built up to the requisite strength the production of the company in northern West Virginia will be on a larger scale than at any time in recent years. All mines of the company except those at Junior and Mabie are now in operation. The Harding mine has been on a part-time basis but it is now proposed to operate it every day in the week.

The following West Virginia coal companies have surrendered their charters and discontinued business: C. G. Hartin Coal Co., Mullens Smokeless Coal Co., Laurel Coke Co., Bengal Co., Goodin & Barney Coal Co.

The New England Fuel & Transportation Co. recently put into blast a battery of 60 coke ovens at Federal No. 1 mine, at Grant Town.

A circuit court jury at Huntington on Oct. 28 found a verdict for $122,500 in the suit of Charles W. H. Crane, of Cincinnati, against A. J. Dalton and J. A. Kelly, growing out of a Wyoming County land deal. Two previous hearings in the circuit court had resulted in hung juries. The sum is approximately one-half the amount asked by the plaintiff, who claimed he was due $5 an acre under terms of an agreement under which title to between 49,000 and 50,000 acres of land was acquired, and upon which he held an option from trustees of the Cole and Crane estate.

Operations were suspended indefinitely at No. 1 and No. 2 mines of the Galloway Coal Co., at Galloway, twelve miles west of Grafton on Oct. 31, according to an announcement by F. B. Findley, superintendent. About 500 men were thrown out of work. The mines have operated for several years under the union scale, filling contracts for railroad fuel and for lake delivery, but officials of the company state that the contracts have expired and that the company can no longer afford to operate at the prices now prevailing. The mines have a capacity of about 90 cars a day.

The Alma Thacker Coal Co. mine, located near Matewan, resumed work Nov. 2, after having been closed down for about eighteen months. One hundred and fifty men are finding employment in the mine. It has a capacity of 800 tons of coal per day. Williamson coal men have leased the mine and equipment from the Columbus owners. Every mine in the Williamson district is now working at capacity.

V. S. Veazey, of Fayetteville, has filed a voluntary petition in bankruptcy in the federal court for the southern district of West Virginia. Mr. Veazey has been engaged in operating mines at Glen Jean, in Fayette County, as well as at Robson. Only recently the Glen Jean mine was sold at public sale, but the Robson property is still retained by Mr. Veazey. Liabilities are listed at over $100,000 and assets, including the Robson leasehold are approximately $85,000.

WYOMING

The Rock Springs store of the Union Pacific Coal Co. was destroyed by fire Oct. 31, the loss being close to $100,000. The exact cause of the fire has not been determined. Practically all of the important records of the store were saved. The company operated a complete department store with a stock of between $60,000 and $75,000. On the following Monday morning a temporary store was opened in an old school building near the scene of the fire.

The second October payroll in the Rock Springs district is said to have been the largest in the past four years. It is reported that the miners' payroll from the four Union Pacific mines in Rock Springs alone amounted to more than $77,000.

Traffic

More New B. R. & P. Coke Rates Are Approved

The New York Public Service Commission has approved new rates on the Buffalo, Rochester & Pittsburgh R.R. on coke and coke breeze from Buffalo to Lincoln Park and Rochester, $1.39 (including connecting lines switching charge not exceeding 38c. per ton, not heretofore included in the $1.39 rate); to Beaver, Riceville and West Valley, $1.23, reduction 3c.; to Ashford, $1.39, increase 13c.; effective Nov. 29.

Allows Emergency Rates on Coke

Establishment of lower rates on coke and coke breeze from the Birmingham (Ala.) district to southeastern Michigan destinations east of the Grand Rapids & Indiana division of the Pennsylvania System and south of the line of the Pere Marquette R.R. has been permitted by the Interstate Commerce Commission over the protest of Illinois, Indiana and Wisconsin byproduct coke interests, who opposed granting the Alabama & Great Southern and Louisville & Nashville railroads permission to make the reductions effective on 10 days' notice. The new rates are 50 and 75c. per ton higher than the rates from Chattanooga, Tenn., to the same destinations. The petitioning carriers pled the emergency created by the anthracite strike as justification for the proposal to make the rates effective on less than statutory notice. The existence of such an emergency was denied by the opponents, who stated that coke plants at Indianapolis, Terre-Haute, Ind., and Granite City, Ill., "are now moving large quantities of coke into Michigan."

Obituary

Robert Ivell, 81, retired coal operator, died recently near Harrisville, Pa. He was employed when young in English coal mines. In 1881 he went to Pennsylvania and operated mines in Cherry and Venango townships of Butler county, retiring 20 years ago. He leaves his widow and seven children.

Ashley E. Woolridge, one of Clearfield County's best known citizens and most successful coal operators, died at his home in Woodland, Pa., Oct. 29, aged 68 years. His parents were among the early settlers of Clearfield County. He served two terms as county commissioner of Clearfield County and during the past ten years was among the best known coal operators in the Clearfield district, having started coal development many years ago. He is survived by three daughters and three sons.

Fred H. Harwood, 62, a prominent Chicago coal dealer, died at his home in Lankershim, Calif., Oct. 23. He was a former president of the New Kentucky Coal Co. and for a number of years was traffic manager of the Illinois Coal Traffic Bureau in Chicago. From 1904 to 1909 he was coal traffic manager of the Illinois Central R.R., having been twenty-two years in the service of that company.

William F. Aldrich, who came to Alabama in 1874, and together with his brother, Trueman H. Aldrich, founded the mining town of Aldrich, in Shelby County, which is now the center of extensive coal-mining operations, died at Birmingham Oct. 30. Mr. Aldrich moved to Birmingham in 1912, since which time he had been engaged in handling mineral properties. He at one time represented the Fourth Alabama District in Congress.

Coming Meetings

American Institute of Electrical Engineers. Annual meeting of Lehigh Valley section at the Schuylkill Country Club, Pottsville, Pa., Nov. 13, at 6:30 p.m. Chairman, W. H. Lesser, Frackville, Pa.

Harlan County Coal Operators' Association. Annual meeting, Nov. 18, at Harlan, Ky. Secretary, E. R. Clayton, Harlan, Ky.

West Virginia Coal Mining Institute. Fall meeting, Nov. 24 and 25 at the Hotel Morgan, Morgantown, W. Va. Secretary, R. E. Sherwood, Charleston, W. Va.

American Society of Mechanical Engineers. Annual meeting at New York City, Nov. 30-Dec. 3. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

Fourth National Exposition of Power and Mechanical Engineering. Nov. 30 to Dec. 5, at Grand Central Palace, New York City.

Coal Mining Institute of America. Annual meeting, Dec. 9-11, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., P. O. Box 604, Ebensburg, Pa.

American Mining Congress. Twenty-eighth annual convention, Dec. 9-11, Washington, D. C. Secretary, J. F. Callbreath, Munsey Bldg., Washington, D. C.

Recent Patents

Dragline Bucket; 1,547,758. Sidney G. Jones, Minneapolis, Minn. July 28, 1925. Filed Dec. 22, 1923; serial No. 682,242.

Tool for Miners' Lamps; 1,547,829. John R. Shoffner, Dora, Pa. July 28, 1925. Filed July 10, 1924; serial No. 725,231.

Latch for Mine-Car Doors; 1,547,878. Nelson C. Kostenbauder, Aristes, Pa. July 28, 1925. Filed Aug. 18, 1924; serial No. 732,725.

Mine-Car Safety Device; 1,547,990. Robert Winters and Charles M. Samuels, Pittsburgh, Pa. July 28, 1925. Filed Oct. 24, 1924; serial No. 745,619.

Apparatus for Filtering and Softening Water; 1,548,160. Martin F. Newman, Oakmont, Pa., assignor to Wm. B. Scaife & Sons Co., Oakmont, Pa., Aug. 4, 1925. Filed April 20, 1922; serial No. 555,756.

Feeder for Pulverized Material; 1,548,324. G. H. Kaemmerling, Allentown, Pa., assignor to the Fuller-Lehigh Co., Fullerton, Pa. Aug. 4, 1925. Filed June 1, 1921; serial No. 474,103.

Process of and Apparatus for Concentrating or Cleaning Coal; 1,548,446. Emil Deister, Fort Wayne, Ind. Aug. 4, 1925. Filed May 3, 1922; serial No. 558,220.

Manufacturing Pure Anthracene and Pure Carbazol; 1,548,920. Leopold Weil, Hamburg, Germany. Aug. 11, 1925. Filed Dec. 26, 1923; serial No. 682,793.

Rope Haulage System for Collieries; 1,549,447. Frank M. Castleman, Rotherham, England, assignor to the Union Switch & Signal Co., Swissvale, Pa. Aug. 11, 1925. Filed Oct. 9, 1922; serial No. 593,240.

Industrial Notes

The Cleveland office of the **Sullivan Machinery Co.**, hitherto at Room 701, Rockefeller Building, has been moved to Room 1506 in the same building in order to secure needed additional space. R. T. Stone is manager. The office in Sydney, New South Wales, of which R. D. Willets is manager, has been moved from Australasia Chambers, 3 Martin Place, where it had been for 15 years, to Kembla Building, Margaret Street.

C. G. Wennerstrom, formerly of **Allbright-Noll Co.** of Chicago, has recently joined the engineering force of the **Foote Bros. Gear & Machine Co.** of Chicago. Mr. Wennerstrom has an extensive engineering and sales experience, including about seven years with the Davis-Watkins Dairy Manufacturing Co., associated with Mr. Davis, who is now president of the Foote Bros. Gear & Machine Co.

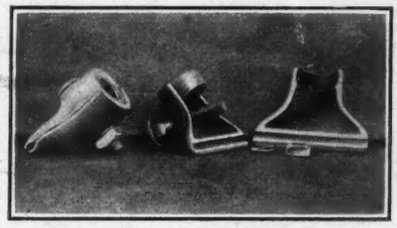
The Russian Soviet Commission visiting this country to study coal mining methods and to purchase American machinery for Russian mines, ordered six type 5 BU and one type 6 BU Joy Loaders from the **Joy Machine Co.**, of Franklin, Pa. These machines are now being shipped and should be in service in seven Soviet mines within ninety days.

New Equipment

Clamp with Only Two Castings Is Easy to Install

Buddy Clamp is the name given to a new trolley clamp recently placed on the market by the Electric Railway Equipment Co., of Cincinnati, Ohio. The clamp is claimed to be quite simple and rugged, although it does not incorporate a self-aligning feature.

The device is made of two castings bolted together. One of these castings is tapped for the usual size insulator stud and matches up with the other casting by a modified ball and socket joint. The whole unit can be installed easily and requires no special wrench. The bolt used to clamp the two sections together is a sherardized carriage bolt. The square section under the head fits into one half section of the clamp, so that when the nut is applied the bolt does not turn.



Simple Clamp Is Easy to Install

Only two castings make up the clamping and attachment parts of this little device. A carriage bolt holds the two parts together and tightens the clamp on the trolley wire.

Fitting Makes It Easy To Pull Wires Into Pipe

It usually is difficult to pull wires into long sections of conduit even though the pipe be of ample size to accommodate the wires. Unless junction boxes are installed this work always has been difficult. To reduce both the cost and space required for pull boxes, the V. V. Fittings Co., Philadelphia, Pa., has placed on the market what is known as a "Straight Line Pull and Splice Fitting," shown in the accompanying illustration. This fitting consists of three parts: A stuffing box and gland with packing *A*, a bushing *B*, and an end connector *C*. For the connection between the stuffing box and end connector a length of conduit is used, having a diameter large enough to go over the conduit that the wires are pulled into. For example, if the main conduit is 1¼ in. in diameter, a piece 1½ in. in diameter will be used for the sliding sleeve between the fittings.

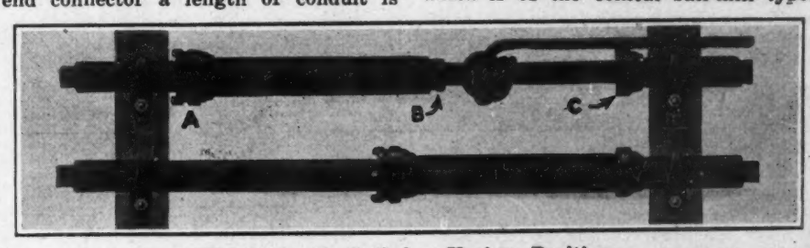
In applying this fitting, the stuffing box and gland *A* are screwed on to the end of the sleeve and they are pushed on over the conduit out of the way. Then the bushing *B* is put on the end of the main conduit in front of the sleeve and the end connector *C* is placed on the end of the conduit on the opposite side of the pull opening.

After the wires have been pulled in, the sleeve is moved up over them and screwed into the end connector and the stuffiing-box gland tightened so as to make a watertight connection, as shown in the lower figure. In addition to using the fitting as a pull box, it may also be used as a junction box in which the wires are spliced. The use of this fitting not only provides greater convenience in pulling in the wire than do pull boxes, but it also occupies much less space. The fittings are made of cast iron, black or galvanized finished in standard conduit sizes from 1 to 6 in.

Combined Grinder and Duster Saves Time and Money

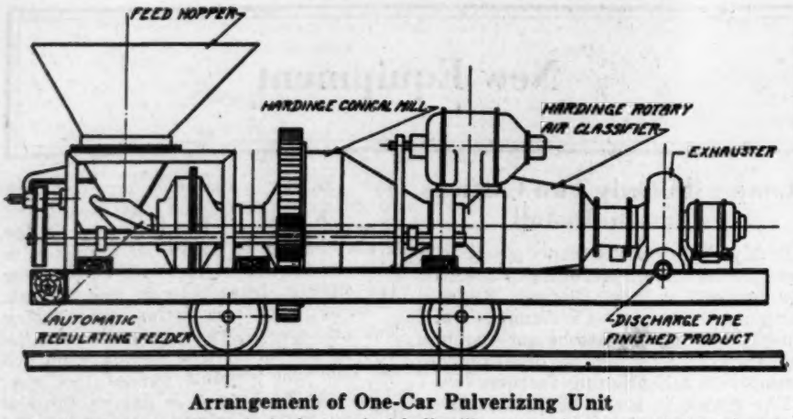
In order to facilitate so far as possible the rock dusting of mines, the Hardinge Co., of York, Pa., has recently placed on the market the combined pulverizing and dusting unit shown in the accompanying illustration. This machine both grinds the inert dust and distributes it within the workings. It consists of a feed hopper, automatic regulating feeder, a Hardinge conical mill, a rotary air classifier and exhauster, and a discharge pipe by which the finished dust is distributed.

This combined pulverizing and dusting unit is a decided departure from most other types of machines at present employed. It possesses certain well defined advantages, however, that commend it for use in many places in both large- and small-scale operations. Rock, crushed but unground, is supplied to the machine in any convenient manner and placed within the feed hopper. An automatic feeder regulates the flow of this material through the pulverizer which is of the conical ball-mill type.



Wires May Be Pulled at Various Positions

A section or piece of sufficient size to slip over the conduit is supplied with fittings so that an opening can be provided for pulling the wires.



Arrangement of One-Car Pulverizing Unit

The feed hopper, automatic feeder, conical ball-mill, rotary classifier and the exhauster are all mounted on one mine car truck. As an alternate arrangement giving slightly greater capacity the hopper and feeding device may be placed on a separate truck. A dust-collector may also be employed if it is desired to spread the dust by hand in places that are inaccessible to the machine or its discharge hose, or to use it in another mine.

From the mill the product is withdrawn and the coarse material separated from the fine by means of the rotating classifier. From this latter piece of equipment, the dust is blown through a nozzle and directed toward the mine surfaces that are to be dusted. The suction of the fan beyond the rotating classifier draws the air into the mill, partly through the feeder but mainly through a central pipe which is kept open. This air in the central pipe conveys the oversize back to the mill in the same way as is accomplished in stationary units of this type.

This portable unit occupies but little more space than an ordinary dusting car. Since the operation of mill and classifier is extremely simple, skilled workmen are not necessary for its manipulation and the machine requires little more attention than need be paid to an ordinary blower. It is far easier to regulate the feed of granular material to the machine than the feed of dust to an ordinary rock dusting car, because any slight degree of moisture in such dust has a tendency to cause packing. An even feed is vital if dusting is to be done effectively or economically.

SAVES MUCH EXPENSE

Since with this device both pulverizing and dusting are accomplished simultaneously, a considerable saving is made both in first cost and operating charges. The expense entailed for a surface plant is eliminated and all work of dusting is done by one crew underground in place of two, as is necessary if a separate grinding unit is installed on the surface.

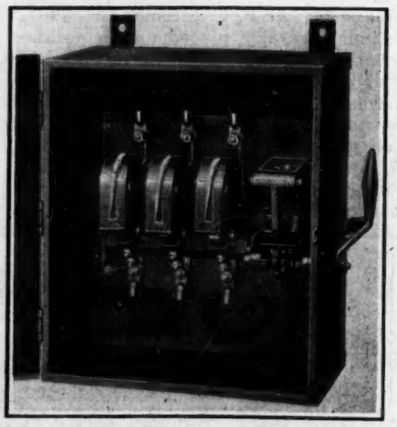
In case dust is desired in bulk, the portable unit may be supplied with a small dust collector similar to that used with a surface plant. This is mounted on a stand and can be moved with the car when hand dusting in inaccessible places is desired, or it may be used for filling trough barriers or sacks.

The portable unit may be supplied either with a nozzle attached direct to the blower outlet, or with a flexible hose so that the operator may reach places more or less inaccessible up to 75 to 100 ft. distant from the car. Furthermore outfits of this kind may be built in one- or two-car units. The two-car unit holds more rock, and has greater capacity. The pulverized product from any of these machines will run approximately 60 per cent through a 200-mesh screen, or finer if desired. A finer grinding is to be preferred as it reduces waste and is more effective in the case of an explosion. The finer the grinding, however, the lower will be the capacity, other conditions remaining the same.

Manually Operated Switch Opens Quickly

A manually operated contactor recently placed on the market by the General Electric Co. and listed as CR-1049 is a new motor-circuit switch for easily disconnecting a motor and its control equipment from the line under practically all conditions except a dead short circuit. It consists of contact elements mounted on insulated shafts and connected through a snap-action mechanism to the operating handle on the outside of a sheet-steel inclosing case.

Both case and handle can be locked in the open position, thus preventing unauthorized persons from closing the device. No provision is made for locking the handle in the closed position.



Opens Heavily Loaded Lines

This quick-break switch is fitted with contactors. A snap-action type trip controlled from the outside of the inclosing cabinet provides safe operation.

The contactor will open under load with full safety to the operator. Silver contact tips are used on all sizes with the exception of the 50-ampere switch thus reducing contact resistance. The new contactor is being made in four sizes ranging from 50 amp. to 300 amp.

Trade Literature

Properties of Steel Filler Rods for Gas and Electric Welding. Chicago Steel & Wire Co., Chicago, Ill. Pp. 28; 4x9 in. The contents of this booklet represent findings of the research department of this company and should prove interesting to those interested in fusion welding. Copy sent on request.

The Delta-Star Electric Co., Chicago, Ill., has issued a bulletin on **High Tension Bus Supports,** containing 48 pp. and 119 illustrations, giving detailed dimensions of supports up to and including 120 kv. Copy sent on request.

Dings Magnetic Separator Co., Milwaukee, Wis., has issued a folder describing and illustrating the uses of its **Separator** in coal mining and other industries.

The Cecil R. Lambert Co., Detroit, Mich., has issued an interesting brochure on **Conveyor Applications.** Copy sent on request.

Aerial Tramways. A. Leschen & Sons Rope Co., St. Louis, Mo. Catalog No. T-25. Pp. 51; 6x9 in.; illustrated. This interesting catalog is divided into four sections. Section I gives general information concerning the adaptability, operation and fundamental features of the Leschen aerial tramways; sections II and III cover detailed descriptions of wire-rope tramways, and section IV includes the design and manufacture of Leschen aerial tramways.

Electrical Engineering Service, New York City, has issued a folder describing and illustrating its **Combination Ammeter, Voltmeter and Ohmmeter.** Copy sent on request.

Underwriters' Laboratories Report on Simplex Track Jacks. (Safety Appliance No. 286.) Templeton, Kenly & Co., Ltd., Chicago, Ill. Pp. 58; 6x9 in.; illustrated. Covers tests and tabulations on man-power and safety for track jacks.

Lufkin Tools. The Lufkin Rule Co., Saginaw, Mich. Catalog No. 4. Pp. 95; 4¼x6¼ in.; illustrated. Describes the small tools manufactured by this company, giving weights and prices.

Marion Type "EB" Soot Blower. Marion Machine Foundry & Supply Co., Marion, Ind. Bulletin No. 220. Four-page folder describing and illustrating this new blower for water-tube boilers. The blower is similar to this company's former planet soot blower, except that it now has a valve-in-head independently operated.

Republic Flow Meters Co., Chicago, Ill., has issued a four-page folder describing and illustrating its new **Electrical Level and Pressure Indicator and Recorder.**

The Marion Steam Shovel Co., Marion, Ohio, rceently issued Bulletin 316 on its new **Marion Model 125,** steam and electric, illustrating and describing the new shovel.

Capacitors. General Electric Co., Schenectady, N. Y. Bulletin GEA-77. Pp. 24; 8x10 in.; illustrated. Describes the value of this device in power factor correction on electric generating and distribution systems and for direct installation at motor terminals on low voltage circuits.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued the following literature: Leaflet L-20253, describing its manually and electrically operated oil circuit breakers, types D, F-1, F-2 and F-3; leaflet L-20138, describing its new type SC steel clad distribution transformers for single phase service on small isolated outside substations feeding from high tension lines; circular 1737, bearing the title Adequate Lightning Protection, describing its new Autovalve lightning arresters; L. 20044-B, which is a revised publication on LD static condensers and covers the subject of losses due to low power factor, their correction and the economic application of static condensers.

The Hardinge Rotor Spray for gas scrubbing, air conditioning, absorption, concentration, mixing, aeration, heating and cooling. Hardinge Co., York, Pa. Bulletin No. 29. Pp. 12; 8 x 10½ in.; illustrated.